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HANDBOOK No. 25

The Lily Family (Liliaceae) of British Columbia

By
T. M. C. TAYLOR
Department of Botany
The University of British Columbia

VICTORIA, B.C. JANUARY, 1966

METRIC UNITS

10 millimetres (mm.)	= 1 centimetre (cm.)
10 centimetres	= 1 decimetre (dm.)
10 decimetres	= 1 metre (m.)
1,000 metres	= 1 kilometre (km.)

METRIC AND ENGLISH CONVERSION TABLE

Linear Measure

1 kilometre	=	0.6214 mile
1 metre	=	39.37 inches 3.2808 feet 1.0936 yards
1 centimetre	=	0.3937 inch
1 millimetre	=	0.03937 inch
1 mile	=	1.609 kilometres.
1 yard	=	0.9144 metre
1 foot	=	0.3048 metre
1 foot	=	304.8 millimetres
1 inch	=	2.54 centimetres
1 inch	=	25.4 millimetres

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Illustrations by Frank L. Beebe

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1966

THE HONOURABLE WILLIAM KENNETH KIERNAN
Minister

D. B. TURNER
Deputy Minister

TABLE OF CONTENTS

	Page
Introduction	7
Family Liliaceæ	8
Key to Genera	9
Allium	10
Asparagus	18
Brodiæa	21
Calochortus	23
Camassia	28
Clintonia	32
Disporum	34
Erythronium	40
Fritillaria	47
Lilium	53
Lloydia	57
Maianthemum	60
Smilacina	62
Stenanthium	68
Streptopus	70
Tofieldia	74
Trillium	81
Triteleia	83
Veratrum	87
Xerophyllum	89
Zygadenus	91
Excluded Species	95
Glossary	104
Selected Literature	107
Index to Latin Names	108
Index to Colloquial Names	109

Fig. 1. Liliaceæ—drawings showing different types of flowers and underground parts: a, *Trillium ovatum*, showing three green sepals and three white petals; b, *Erythronium oreganum*, flower with six tepals; c, d, *Fritillaria lanceolata*, flower and bulb with fleshy scales; e, f, *Allium cernuum*, flower, umbellate inflorescence and bulb with papery scales; g, *Streptopus roseus*, with spreading rhizome.

The Lily Family (Liliaceae) of British Columbia

INTRODUCTION

The plants described and illustrated in this handbook belong to the lily family (Liliaceæ) when this is interpreted in a broad sense. Many modern botanists, for good reasons, prefer to divide this large, widely ranging family into a number of smaller families, but this is a matter that need not concern us here. We can note in passing, however, that such a breaking-up of a large family is intended to reflect more closely the relationships of the genera that compose it. The underlying assumption is that the members of one family are more intimately related among themselves than they are to the members of any other family. The smaller families in this case are obviously more homogeneous, and the argument that this indicates a common ancestry has considerable merit.

The members of the Liliaceæ, as we are using the term, all have their flowers with the number of parts in 3's or multiples of 3. The single exception to this rule in our flora is *Maianthemum* (false lily-of-the-valley), in which the basic number is 4.

By referring to the adjacent drawings, the reader will note that the outer whorl of floral parts is the *calyx*, made up of *sepals* which may be green and leaf-like (Fig. 1, a). The *corolla* is made up of *petals*, coloured and usually conspicuous and showy. If the members of the two outer whorls look alike as they do in *Erythronium* (Fig. 1, b) and *Fritillaria* (Fig. 1, c), they are referred to as *tepals*. The *stamens*, which constitute the *andrœcium*, are 6 in number in most species; each consists of a *filament* or *stalk* bearing an *anther* made up of two *pollen sacs*. In the *gynœcium* there are typically 3 *carpels* fused together, at least at their base. Each carpel has an enlarged basal portion, the *ovary*, containing *ovules*, the potential seeds; a terminal *stigma*, which is the receptive area for pollen, is borne on a *style*, which may vary considerably in length from genus to genus. The fruit is a *capsule* or a *berry*.

Among our native Liliaceæ, only one (*Xerophyllum*) has hard evergreen leaves; all others are herbaceous.

While the flowers and leaves tend to conform to a fairly simple pattern, the underground parts show considerable variation. They may take the form of short or spreading *rhizomes* (underground stems) (Fig. 1, g) or *bulbs*. If the latter, the scales may enclose one another as they do in *Allium* (Fig. 1, f) or they may be thick and fleshy as in *Fritillaria* (Fig. 1, d), sometimes even appearing as rice grains.

This comparatively large family is world-wide in its occurrence, but is particularly well represented in temperate and subtropical regions. Some members have long been in cultivation both as ornamentals and food plants. Such favourite spring bulbs as tulips and hyacinths play a very important part in the economy of Holland as well as contributing so much to the beauty of our gardens. Not many are generally regarded as being food plants, exceptions of course being asparagus and many members of the genus *Allium*, such as onions of various sorts, chives, leeks, shallots, and garlic. Others of our species were formerly used as food by Indians, notably camas (*Camassia*), checker lily (*Fritillaria*), and brodiæas. Very few can be classed as medicinal plants; in our own flora probably only the false hellebore (*Veratrum*) can qualify, since it contains principles said to be helpful in treating certain heart conditions. A few species are poisonous, among which should be noted *Zygadenus venosus* (death camas) in our own flora.

FAMILY LILIACEÆ

Scapose or leafy-stemmed herbs from bulbs, corms, or rarely with rootstocks, or sometimes with a woody caudex and arboreal; leaves various; flowers solitary or clustered, regular, and mostly prefect; perianth of 6 separate or nearly separate segments, or these more or less united into a tube; stamens 6, hypogynous, or borne on the perianth, anthers 2-celled, introrse, or sometimes extrorse; ovary superior, 3-celled, ovules few or numerous in each cavity, anatropous or amphitropous, styles free or united, stigma 3-lobed or capitate; fruit a loculicidal (septicidal in *Calochortus*) capsule; embryo with copius endosperm.

About 120 genera and 1,250 species, widely distributed.

KEY TO THE GENERA

A. True leaves scale-like, white or colourless; the so-called leaves short, thread-like ..... *Asparagus*
AA. Leaves green, not as above.
B. Leaves absent at time of flowering ..... *Allium*
BB. Leaves present at flowering.
C. Leaves opposite or whorled, sometimes the lower alternate but not basal.
D. Leaves 3 in a whorl at top of the stem; flowers solitary, white, sepals and petals distinctly different ..... *Trillium*
DD. Leaves several in a whorl and usually in more than one whorl; perianth segments not differentiated.
Perianth red or reddish-orange, usually with conspicuous spots; segments more than 35 mm. long ... *Lilium*
Perianth otherwise, brownish-purple or yellow to orange; segments less than 30 mm. long ... *Fritillaria*
CC. Leaves alternate or basal.
D. Principal leaves on the stem never crowded toward the base.
E. Stem branched.
Flowers terminal in 1-several flowered umbel *Disporum*
Flowers single, axillary, nodding ..... *Streptopus*
EE. Stem unbranched below the inflorescence.
F. Flowers axillary, single on filiform pedicels *Streptopus*
FF. Flowers in a terminal inflorescence.
G. Flowers in a simple raceme.
H. Perianth segments 4 ..... *Maianthemum*
HH. Perianth segments 6.
Leaves lance-ovate; stem from spreading rhizome ..... *Smilacina*
Leaves linear to lance-linear; stem from bulb ..... *Stenanthium*
GG. Flowers in a panicle.
Perianth segments 2 mm. long; panicle usually less than 10 cm. long; stem somewhat arched, glabrous ..... *Smilacina*
Perianth segments more than 4 mm. long; panicle more than 20 cm. long; stem erect, very stout; pubescent, but sometimes sparsely so ..... *Veratrum*
DD. Principal leaves largely basal; stems with much reduced leaves or stem leaves absent.
E. Styles distinct or nearly so.

F. Plants with rhizomes rather than bulbs.
Rhizomes thick, stout, vertical; leaves many, hard, rough-margined ..... *Xerophyllum*
Rhizomes horizontal, slender; leaves soft, 2-ranked ..... *Tofieldia*
FF. Plants with bulbs; perianth segments with a gland on upper surface ..... *Zygadenus*
EE. Styles united, sometimes lacking.
F. Leaves linear to linear-lanceolate.
G. Outer perianth segments distinctly different from the inner ..... *Calochortus*
GG. All perianth segments essentially alike.
H. Flowers in an umbel.
I. Fertile stamens 3, alternating with 3 staminodes ..... *Brodiæa*
II. Fertile stamens 6, no staminodes.
Plants with taste and odour of onions ..... *Allium*
Plants otherwise ..... *Tritelia*
HH. Flowers single or in racemes.
Plant low, up to 20 cm.; flowers usually 1, creamy white, subalpine species ..... *Lloydia*
Plant tall, more than 20 cm., usually much more; flowers many in a terminal raceme, blue to purplish, only occasionally white; lowland species ..... *Camassia*
FF. Leaves broad, at least not linear-lanceolate.
Perianth segments usually revolute; bulb with membranous scales ..... *Erythronium*
Perianth segments not revolute; no bulb but a spreading rhizome ..... *Clintonia*

ALLIUM L.

Flower stalks from tunicated bulbs. Leaves mostly basal, narrowly linear, with the characteristic odour and taste of onions. Inflorescence, umbellate, subtended by 2–4 membranous bracts. Flowers in various shades of rose, sometimes quite pale. Pedicels slender, not jointed. Perianth persistent, the segments nearly or quite distinct, stamens 6, inserted on the base of the perianth seg-

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ments, fruit capsular, somewhat obovoid, globose, obtusely 3-lobed, often crested. Seeds obovoid, wrinkled, black.

A large genus of several hundred species widely distributed in the northern hemisphere.

A. Inflorescence subcapitate, leaves hollow, terete; ovary crestless *A. schoenoprasum*

AA. Inflorescence umbellate, leaves solid, flat or channelled, rarely terete; ovary crested.

B. Outer bulb scale persisting as a network of coarse anastomosing fibres; ovary crested with 6 low, knob-like processes *A. geyeri*

BB. Outer bulb scales without fibres, or with parallel fibres, never with a fibrous network.

C. Bulbs elongate, stipitate; umbel nodding; ovary conspicuously crested; stamens exserted *A. cernuum*

CC. Bulbs ovoid to subspherical; umbel erect; stamens included.

Leaves usually more than 2 per scape and shorter than the scape; perianth segments with recurved tips; scape terete *A. acuminatum*

Leaves usually 2 per scape and considerably longer than the scape; perianth segments not recurved; scape flattened with winged margins *A. crenulatum*

***Allium acuminatum* Hooker** **Hooker's Onion**

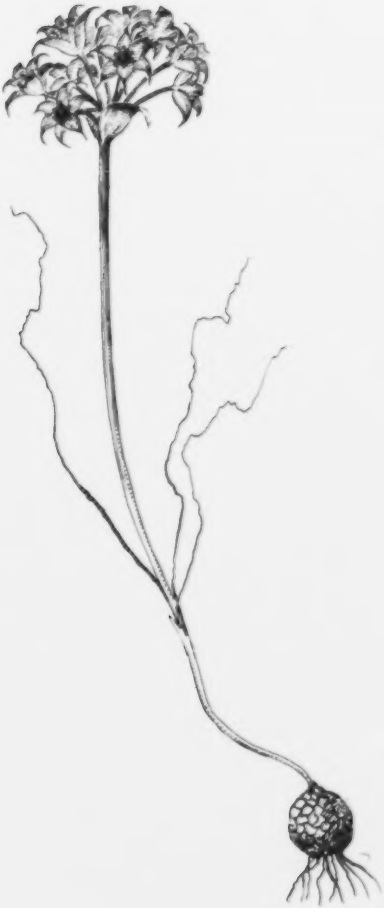
DESCRIPTION.—*Bulb:* Ovoid, 10–15 mm. long, outer scales grey, inner white. *Stem:* Scapose, 1–3 dm. high, slender, terete; bracts 2, ovate, short acuminate. *Leaves:* 1–2, about as long as the scape, 2–3 mm. wide, terete, slender. *Inflorescence:* Open umbel, 7–25 flowered, pedicels as long as or longer than the perianth. *Perianth:* Bright rose, occasionally white, about 10 mm. long, lanceolate acuminate, the outer segments recurved, the inner not so and serrulate. *Stamens:* Stamens shorter than the perianth, filaments dilated at base. *Ovary:* Crests 3, somewhat inconspicuous. *Fruit:* Capsule with almost obsolete crests.

HABITAT.—Well drained, often stony or rocky ground.

SEASON.—May to June.

RANGE.—British Columbia to Idaho, south to California and Arizona.

DISTRIBUTION IN BRITISH COLUMBIA.—Southeastern Vancouver Island, Fraser Valley as far north as Lytton and Pemberton.



Allium acuminatum Hooker. Hooker's onion.

Allium cernum Roth. Nodding onion.

COMMENTS.—The flowers of this very attractive species are usually a strong rose colour with the tips of the perianth segments recurved.

***Allium cernuum* Roth.** **Nodding Onion**

DESCRIPTION.—*Bulb:* Narrowly ovoid with long neck, usually clustered, scales membranous without fibrous network. *Stem:* Slender, somewhat angled, up to 5 dm. tall. *Leaves:* Linear, flattish toward the apex, channelled below, often keeled, about 3 mm. wide, mostly shorter than the scape. *Inflorescence:* Many-flowered umbel, nodding in flower; 2 short deciduous bracts; pedicels slender, 20–30 mm. long. *Perianth:* White or pink, campanulate, segments ovate-oblong, somewhat blunt, 4–6 mm. long. *Stamens:* Longer than the perianth. *Ovary:* 2 ovules in each cavity. *Fruit:* Capsule, 3-lobed, 6 high crests, 2 on each valve.

HABITAT.—Dry woods, dry open grassy places.

SEASON.—June to August.

RANGE.—British Columbia to New York, south to Oregon, Texas, Missouri, and Georgia.

DISTRIBUTION IN BRITISH COLUMBIA.—Throughout, at least as far north as latitude 56°.

COMMENTS.—Our commonest onion; its recurved head is a very consistent and good diagnostic character. *A. stellatum* Ker., of Henry, Flora of Southern British Columbia, appears to be a form of this species.

***Allium crenulatum* Wieg.** **Olympic Onion**

SYNONYM.—*Allium vancouveriense* Macoun.

DESCRIPTION.—*Bulb:* Narrowly ovoid, outer scales papery, no fibrous network. *Stem:* Scapose, 5–6 cm. tall, flattened, margins obscurely crenately winged. *Leaves:* Basal, usually 2, flattened, recurved, considerably longer than the scape. *Inflorescence:* Compact umbel with 2 conspicuous, ovate lanceolate, bracts; about 15 flowered. *Perianth:* Segments rose-purple, 7–8 mm. long, oblong-lanceolate, acute. *Stamens:* About ¾ length of perianth. *Fruit:* Capsule with 6 low dorsal crests.

Allium crenulatum Wieg. Olympic onion.

HABITAT.—Alpine regions.

SEASON.—July to August.

RANGE.—Vancouver Island and Olympic Peninsula.

DISTRIBUTION IN BRITISH COLUMBIA.—Known only from the mountains of central Vancouver Island.

COMMENTS.—The two flat, recurved leaves longer than the scape are useful field characters. This very local alpine species should be watched for elsewhere on the Coast Mountains.

***Allium geyeri* S. Wats.** **Geyer's Onion**

SYNONYM.—*Allium rubrum* Osterhout.

DESCRIPTION.—*Bulb:* Ovoid without basal bulblets, sometimes clustered, outer scales brownish, fibrous, rather coarse meshed. *Stem:* Scape up to 5 dm. tall, terete or somewhat angled. *Leaves:* Usually 3 or more, channelled, 2–5 mm. broad, usually shorter than the scape, green at anthesis. *Inflorescence:* Umbel 10 many-flowered, bracts 2 or 3, ovate to lanceolate; pedicels nearly equal in length, often less than twice that of the perianth. *Perianth:* Segments pink, rarely white, 6–8 mm. long, ovate to lanceolate, somewhat acuminate, erect, permanently enclosing the capsule in fruit; mostly replaced by ovate, acuminate bulbils. *Stamens:* Usually shorter than the perianth, filaments dilated below and united into a cup; anthers oblong. *Ovary:* Inconspicuously crested with 6 low knobs, style subulate shorter than the filaments. *Fruit:* Capsule.

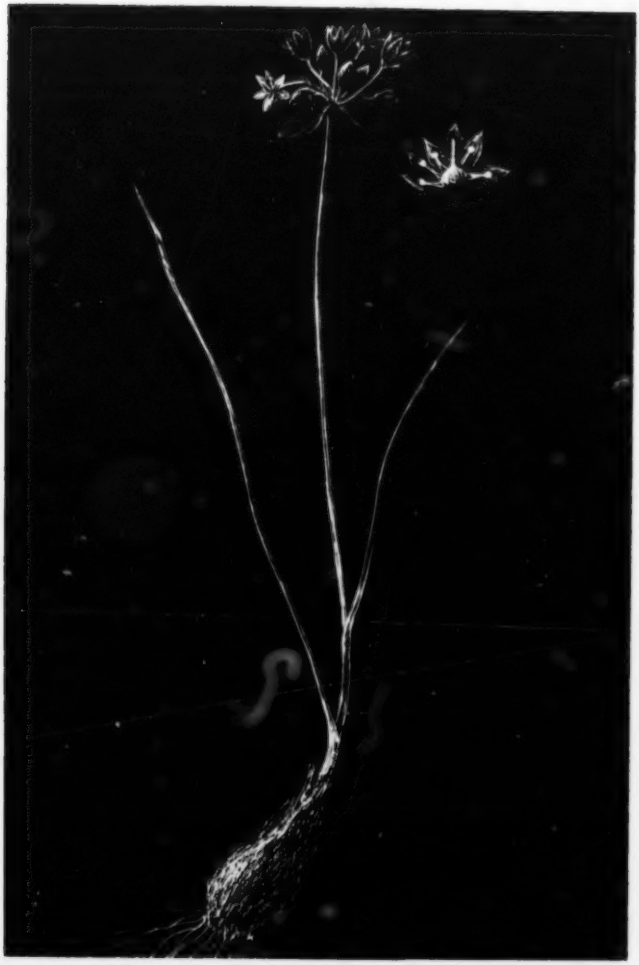
HABITAT.—Meadows and along streams.

SEASON.—June to July.

RANGE.—Southern British Columbia to southern Alberta, south to Oregon; Nevada, New Mexico, and Arizona.

DISTRIBUTION IN BRITISH COLUMBIA.—Known only from the Botanie Valley and southern Vancouver Island.

COMMENTS.—Our only species in which bulbils replace flowers. Should be looked for throughout the northern Interior. Our form is var. *tenerum* M. E. Jones.



Allium geyeri S. Wats. Geyer's onion.

***Allium schœnoprasum* L.** **Wild Chives**

SYNONYM.—*A. sibiricum* L.

DESCRIPTION. — *Bulb:* Narrowly ovoid, clustered forming clumps, scales membranous usually white, lacking fibrous network. *Stem:* Scapose, 2–6 dm. high, rather stout. *Leaves:* Linear, terete, hollow, 1–2 mm. in diameter, 1 or 2 borne below the middle of the scape or all basal, usually shorter than the scape; bracts 2, ovate, acute. *Inflorescence:* Compact many-flowered umbel. *Perianth:* Pale rose; segments lanceolate, acuminate; pedicels shorter than the perianth. *Stamens:* About half as long as the perianth. *Ovary:* 2 ovules in each cavity. *Fruit:* Capsule, obtusely 3-lobed, half as long as the perianth, not distinctly crested.

HABITAT.—Damp ground, margins of lakes and river banks, gravelly flood-plains.

SEASON.—July to August.

RANGE.—Circumboreal in one form or another, south to Oregon and Wyoming.

DISTRIBUTION IN BRITISH COLUMBIA.—Found in the Kootenays and northern and northeastern parts of the Province.

COMMENTS.—Our representative is var. *sibiricum* (L.) Hart. This species is the ancestor of our cultivated chives.

Allium validum S. Wats. is close to *A. schœnoprasum* var. *sibiricum*, from which it differs in having the leaves flat or slightly keeled, not round and hollow; bulbs longer and finely reticulate; pedicels longer (10–15 mm. as against 2–6); umbels erect, not nodding. British Columbia to California. According to Eastham (1947), "Plentiful in running water at head of McIntyre Creek, Okanagan Falls, at 4,500 ft."

ASPARAGUS L.

Stems tall, numerous, clustered, arising from spreading rhizomes, freely branched. Leaves reduced to small white or colourless scales, which sometimes become stiff and spine-like. Branchlets green, short, filamentous or flattened. Flowers axillary, small

Allium schœnoprasum L. Wild chives.

Asparagus officinalis L. Garden asparagus.

and greenish on jointed pedicels. Perianth parts all alike, distinct or united at the base. Fruit a berry.

A genus of about 120 species, widely distributed in the temperate and warmer parts of the Old World.

***Asparagus officinalis* L.** **Garden Asparagus**

DESCRIPTION.—*Rhizome* cord-like, spreading and freely branching. *Stem:* Herbaceous, green, thick, erect up to 13 dm. tall, with numerous scale leaves, freely branched above. Branchlets green, finely thread-like, produced in tufts in the axils of leaves. *Leaves:* Triangular, scale-like papery, inconspicuous except on the main stem. *Flowers:* Solitary, axillary, pendulous on short, jointed pedicels. *Perianth:* parts all alike, greenish- or yellowish-white, 5–7 mm. long. *Fruit:* Bright red, globose berry about 6 mm. in diameter.

HABITAT.—Sandy, open places.

RANGE.—North temperate regions of the Old World; widely naturalized in North America.

DISTRIBUTION IN BRITISH COLUMBIA.—A common gardens escape, particularly along irrigation ditches and in orchards in the Interior.

COMMENTS.—This is the garden asparagus so valued as a vegetable. The common name asparagus fern is often applied to this and other species; it is, of course, not a fern, as the flowers and fruits make clear.

BRODIÆA SMITH

Corm scales fibrous, dark brown; leaves few, linear, flat not keeled; inflorescence solitary, umbellate, subtended by several membranous bracts, pedicels often unequal in length; perianth turbinate, segments equalling the tube, spreading; stamens 3 fertile alternating with 3 staminodes; anthers erect and closely appressed to the style; ovary and capsule more or less sessile, stigma 3-lobed, lobes spreading and recurved.

Brodiæa coronaria (Salisb.) Engler. Harvest Brodiæa, large-flowered Brodiæa.

Named after James Brodie (1744–1824), a Scottish botanist. A genus of 10 species found only in western North America, particularly in California.

***Brodiæa coronaria* (Salisb.) Engler.**
Harvest Brodiæa, Large-flowered Brodiæa

SYNONYM.—*Brodiæa grandiflora* Smith.

DESCRIPTION.—*Corm:* Sub-globose, about 20 mm. in diameter. *Stem:* Scapose, stout, 2–5 dm. tall, glabrous. *Leaves:* Usually about equalling the scape, 2 mm. wide often somewhat terete, glabrous. *Inflorescence:* Loose, 2–10-flowered umbels, pedicels 2–10 cm. long, often unequal. *Perianth:* Violet-purple, tube funnel-form, 25–40 mm. long, about as long as the segments. *Stamens:* 3 fertile and 3 staminodes, filaments flat, dilated at the base, 2–4 mm. long; anthers about 2 times as long as the filaments. *Ovary:* 3-angled, narrowed below. *Fruit:* Ovoid, sessile capsule with stout persistent style and stipitate base; seeds 1.5–2.0 mm. long.

HABITAT.—In rather heavy clay soil, gravelly places, and grassy hillsides.

SEASON.—June to July.

RANGE.—British Columbia to California, west of Cascades and Sierra Nevada Mountains.

DISTRIBUTION IN BRITISH COLUMBIA.—Common in the drier southeastern regions of Vancouver Island, the Gulf Islands, and adjacent mainland from Courtenay and Sechelt south.

COMMENTS.—Readily distinguished from *Triteleia grandiflora* (*B. douglasii* Smith) by having only 3 fertile stamens, the irregularity of its umbel due to the flowers opening in succession, and the narrow leaves that have frequently disappeared by flowering time.

CALOCHORTUS PURSH

Corm scales membranous, rarely fibrous; stem scapiform or leafy, simple or branched; leaves few, linear-lanceolate, those on the stem clasping; flowers showy, terminal on branches; bracts usually as long as the pedicels and opposite them; perianth open-

Calochortus apiculatus Baker. Three spot tulip.

campanulate, erect or nodding, segments well differentiated, 3 outer sepal-like, narrow, naked, 3 inner petaloid usually larger and broader, bearded with a gland near the base; stamens 6, inserted on the base of the segments; stigmas 3, sessile, persistent; capsules 3-angled to 3-winged, erect or nodding.

(From the Greek, meaning "beautiful grass.") A genus of about 60 species of western America ranging from British Columbia to Guatemala.

Flowers, 30–45 mm. long, purple or pinkish; sepals longer than the petals; capsule wingless ..... *C. macrocarpus*

Flowers, less than 25 mm. long, white or yellowish-white; sepals shorter than the petals; capsule winged.

Capsule nodding in fruit; gland circular; stamens long apiculate ..... *C. apiculatus*

Capsule erect in fruit; gland crescent shaped; anthers acute or acuminate not long apiculate ..... *C. lyallii*

Calochortus apiculatus Baker — Three Spot Tulip

SYNONYM.—*Calochortus elegans* sensu Henry not Pursh.

DESCRIPTION.—*Corm:* Ovoid, with membranous scale. *Stem:* Usually scapiform, flexuous, 1–3 dm. tall. *Leaves:* Basal leaf 1–3 dm. long, 5–15 mm. wide, tapering to both ends, usually shorter than the stem. *Inflorescence:* More or less umbellate, 1–5 flowered; bracts 2–several, lanceolate to linear, taper pointed, unequal, 1–5 cm. long. *Perianth:* Campanulate, erect or spreading on rather elongated pedicels, becoming strongly deflexed in fruit. *Sepals:* Greenish-white, shorter than the petals, oblong-lanceolate, acuminate glabrous. *Petals:* Yellowish-white, obovate to oblanceolate, 20–25 mm. long, clawed, fringed laterally and moderately bearded on the lower half above the claw. *Gland:* Small, nearly circular in outline, dark coloured. *Stamens:* Anthers lanceolate, long-apiculate, as long as or longer than the filaments. *Ovary:* 3-winged with a short style and persistent 3-branched stigma. *Fruit:* Elliptic, acute, 3-winged, nodding capsule about 25 mm. long.

HABITAT. — Well-drained soil in full sun or open coniferous woods.

RANGE.—Southeastern British Columbia to southwestern Alberta, south to northwestern Montana and northeastern Washington.

SEASON.—June to July.

DISTRIBUTION IN BRITISH COLUMBIA. — Rocky Mountain Trench from Windermere south.

COMMENTS.—Distinguished from *C. lyallii* by its small, nearly circular, dark gland.

Calochortus lyallii Baker

DESCRIPTION.—*Corm:* Ovoid with membranous scale. *Stem:* Erect, usually with a single bract-like leaf about midway up. *Leaves:* Basal leaf 1–3 dm. long, 2–20 mm. broad, tapering to both ends, usually not exceeding the inflorescence, bracts 2–several, lanceolate to linear, attenuate. *Inflorescence:* More or less umbellate, usually 1–4-flowered. *Perianth:* Erect, broadly campanulate. *Sepals:* Greenish-white, lanceolate, acuminate, about equalling the petals in length, glabrous, with a purple crescent spot toward the base. *Petals:* White tinged with purple, ovate to lanceolate, acute, abruptly contracted at the base to a short claw, usually conspicuously fringed with long slender hairs. *Gland:* Purplish, transverse, arched upwards. *Stamens:* Anthers oblong-lanceolate, acute to short apiculate, about as long as the filaments. *Ovary:* 3-winged, with a short, persistent style and 3-branched stigma. *Fruit:* Erect, elliptical capsule, acute at both ends, acutely 3-winged, 14–18 mm. long.

HABITAT.—Dry slopes.

SEASON.—June to July.

RANGE. — Extreme southern British Columbia to southern Washington along the easterly face of the Cascade Mountains.

DISTRIBUTION IN BRITISH COLUMBIA.—Known from a single collection along the Similkameen River. Has not been collected in the last 50 years.

COMMENTS.—Quite similar to *C. apiculatus* but can be readily distinguished by its crescent-shaped gland, bluntish rather than long apiculate anthers, and erect fruit.

Calochortus macrocarpus Douglas. Mariposa lily.

***Calochortus macrocarpus* Douglas** **Mariposa Lily**

DESCRIPTION.—*Corm:* Ovoid, with membranous scale. *Stem:* Stout, erect, usually unbranched, often with bulblets in the axils of leaves. *Leaves:* Several, linear, reduced in length upwards, becoming strongly involute and curled at tip. *Influorescence:* More or less umbellate, 1–3-flowered, with conspicuous leaf-like bracts. *Perianth:* Erect, purple to pink, each petal with a central longitudinal green stripe, and sometimes with a transverse dark-purple band above the gland. *Sepals:* Exceeding the petals, narrowly lanceolate, long-attenuate, glabrous. *Petals:* Oblanceolate, acuminate, moderately bearded with slender hairs just above the gland. *Gland:* Triangular-oblong, more or less sagittate, surrounded by a broad fringed membrane and densely covered with slender hair-like processes. *Stamen:* 6, anthers longer than the basally dilated filaments. *Ovary:* Not winged, tapering to a persistent trifid stigma. *Fruit:* Linear-lanceolate, 3-angled, erect, capsule 4.3–5.5 cm. long, scarcely winged.

HABITAT.—Dry hillsides and benches, usually in light soil.

SEASON.—June to August.

RANGE.—Southern British Columbia to western Montana, southward east of the Cascades to northeastern California and northern Nevada.

DISTRIBUTION IN BRITISH COLUMBIA. — East of the Coast Mountains and Cascades from about Williams Lake southward, particularly common in the dry Interior valleys.

COMMENTS. — Readily distinguished by its large tulip-like flowers with green-striped petals and pale, narrow, long attenuate sepals. Strong pink and almost pure-white forms occur. The bulbs were used for food by the Indians.

CAMASSIA LINDL.

Perennial from membranous, dark scaled bulbs. Stems slender and scapose with a basal whorl of linear leaves. Pedicels jointed at apex and in the axils of scarious bracts. Flowers large and

Camassia leichtlinii (Baker) S. Wats. Great camas.

showy, blue or occasionally white, in a simple terminal raceme. Perianth segments 6, somewhat spreading and persistent. Stamens 6, filaments about ¾ length of perianth segments, anthers versatile. Ovary 3-celled; style filiform with a persistent base; stigma 3-lobed. Fruit a subglobose to oblong capsule. (The vernacular Indian name for an edible bulb.)

An American genus of 5 species. The bulbs were a staple article of diet for Indians.

Perianth segments not connivent and twisted together over the ovary after anthesis; flowers somewhat irregular with 5 perianth segments curving upwards and the 6th downward, many flowers in bloom at the same time; fruiting pedicels erect, shorter than the bracts ..... *C. quamash*

Perianth segments connivent and twisted together over the ovary after anthesis; flowers regular, only 1–3 in bloom at the same time; fruiting pedicels spreading, longer than the bracts ..... *C. leichtlinii*

Camassia leichtlinii (Baker) S. Wats. Great Camas

DESCRIPTION.—*Bulb:* About 2 cm. in diameter. *Stem:* Scapose, 2–12 dm. tall. *Leaves:* Up to 6 dm. long, 0.5–2.5 cm. broad. *Inflorescence:* Racemose, 5–many-flowered; bracts shorter than the spreading pedicels. *Perianth:* Regular, blue violet, rarely white, 2–4 cm. long, withered segments twisting together over the ovary. *Stamens:* Anthers 4–7 mm. long. *Fruit:* Oblong or ovate capsule, 1–2 cm. long.

HABITAT.—Grassy meadows and roadsides.

SEASON.—May to June.

RANGE.—Southern Vancouver Island, south along the coast and west of the Cascade Mountains to California.

DISTRIBUTION IN BRITISH COLUMBIA.—Only on southeastern Vancouver Island, south from Nanaimo.

COMMENTS.—Flowers 2–3 weeks later than *C. quamash*, with which it is associated on southern Vancouver Island. The twisting together of the withered perianth segments and the spreading pedicels are useful for recognition in our area.

Camassia quamash (Pursh) Greene. Common camas.

***Camassia quamash* (Pursh) Greene** **Common Camas**

SYNONYM.—*Camassia esculenta* Lindley.

DESCRIPTION.—*Bulb:* About 2 cm. in diameter. *Stem:* 2–7 dm. tall. *Leaves:* Up to 5 dm. long and 1.0–1.5 cm. broad. *Inflorescence:* Racemose, 5–many-flowered; bracts as long as or longer than the pedicels, often broad and conspicuous. *Flowers:* Either zygomorphic or regular, both occurring in the same inflorescence, blue violet, occasionally white. *Perianth:* Segments 1.5–3.5 cm. long, withered segments not connivent over the capsule. *Stamens:* Anthers 4–7 mm. long. *Fruit:* Capsules usually ovate 1.0–2.5 cm. long, pedicels incurved, erect.

HABITAT.—Grassy places.

SEASON.—April to May.

RANGE.—Southern British Columbia to Alberta, south to California, Montana, and Utah.

DISTRIBUTION IN BRITISH COLUMBIA.—Southeastern Vancouver Island and Columbia Valley south from Castlegar. A single collection near Haines, Alaska, although growing in an undisturbed area should be regarded with caution until re-collected.

COMMENTS.—In our form the erect incurved fruiting pedicels, the numerous flowers in bloom at the same time, and the absence of twisted, withered perianth segments are good field characters.

CLINTONIA RAF.

Rootstocks slender and creeping; scapes simple, erect, arising from a basal rosette of a few petioled sheathing leaves. Flowers bractless, terminal, 1 to few in an umbel. Perianth segments free, equal or nearly so, erect, spreading. Stamens 6, inserted at the base of the perianth. Ovary 2–3-celled with 2–several ovules in each cavity. Fruit a globose berry. (Named after DeWitt Clinton (1769–1828), naturalist and Governor of the State of New York.)

A genus of 6 species, 2 eastern North America, 2 western North America, and 2 eastern Asia.

Clintonia uniflora (Schult.) Kunth. Queen cup.

***Clintonia uniflora* (Schult.) Kunth.** **Queen Cup**

DESCRIPTION.—*Rhizome:* Slender and creeping. *Stem:* Short, mostly subterranean. *Leaves:* 2–4 oblanceolate to obovate, 8–15 cm. long, 3–7 cm. wide, tapering to a sheathing base, usually markedly villous-pubescent. *Peduncle:* Slender, pubescent, about ½ to ⅔ length of leaves. *Flowers:* Usually 1, erect, white. *Perianth:* 18–25 mm. long, about 6 mm. wide, pubescent. *Stamens:* Filaments pubescent, anthers linear, 4–5 mm. long, sagittate. *Fruit:* Blue, globose, berry 8–12 mm. in diameter. *Seeds:* 6–10 in each cavity.

HABITAT.—Damp coniferous woods, particularly in the mountains.

SEASON.—June to August, depending on altitude.

RANGE.—Southern Alaska to Montana, south to northern California.

DISTRIBUTION IN BRITISH COLUMBIA.—Common west of the Rocky Mountains and south of latitude 56° N.

COMMENTS.—Conspicuous at all stages of growth with its rosette of rather large hairy leaves, with its large white flower, and later with its blue berry.

DISPORUM SALISB.

Perennial herbs from slender rootstocks. Stems erect, sparingly branched, scaly below, leafy above. Leaves alternate, sessile or clasping, somewhat inequilateral. Flowers solitary or few, greenish, yellow or white, terminal, drooping. Perianth of 6 narrow similar segments. Stamens 6, adherent to base of perianth. Ovary sessile, 3-locular; style filiform; stigma 3-cleft or entire. Fruit an ovoid, obtuse berry. (Name from Greek, referring to the 2 seeds in each locule of the ovary.)

About 15 species in North America and Asia.

Ovary broadly ovoid or obpyriform, papillose; leaf margins with irregular, flattened hairs ..... *D. trachycarpum*

Disporum hookeri (Torrey) Britt. Hooker's fairy bell.

Ovary ellipsoidal, glabrous or pubescent not papillose; hairs on leaves, if present not flattened.

Flowers cylindrical; margins of leaves sparsely ciliate, or glabrous, upper surface glabrous; fruit normally with more than 6 seeds ..... *D. smithii*

Flowers turbinate; margins of leaves markedly ciliate, cilia pointing sharply forward, leaf surfaces puberulent; fruit normally with less than 6 seeds ..... *D. hookeri*

***Disporum hookeri* (Torrey) Britt. Hooker's Fairy Bell**

SYNONYM.—*Disporum oreganum* (Wats.) B. & H.

DESCRIPTION.—*Stem:* Up to 10 dm. tall, usually with spreading hairs. *Leaves:* Variable, lanceolate to ovate, long acuminate to acute, usually somewhat clasping, 3–13 cm. long, lower surface scabridulous, upper sparsely so or glabrate, margins with forward-pointing cilia. *Flowers:* 1–3, creamy or greenish white, 10–14 mm. long. *Perianth:* Turbinate, segments oblanceolate, slightly gibbous below. *Stamens:* Slightly to well exserted; anthers hispidulous or glabrous, ¼ to ½ as long as the filaments. *Ovary:* Ellipsoidal, glabrous or lanulose; style filiform, glabrous or lower half pubescent; stigma entire or occasionally slightly 3-cleft. *Fruit:* Bright red, ovoid berry. *Seeds:* Commonly 4–6.

HABITAT.—Shaded woods.

SEASON.—May to June.

RANGE.—British Columbia to southwest Alberta, south to western Montana and California.

DISTRIBUTION IN BRITISH COLUMBIA.—Common in the wetter parts of the Province as far north as about latitude 55°. Most abundant on Vancouver Island and in the Arrow-Kootenay Lake area.

COMMENTS.—A very variable species represented in our area by variety *oreganum* (Watson) Q. Jones. Characterized by long acuminate leaves, the lower surfaces of which are scabridulous and with the cilia of the margins usually long-pointed. The stamens are usually well exserted, the ovary lanulose or sometimes glabrous, and the stigma usually entire.

Disporum smithii (Hooker) Piper. Large-flowered fairy bell.

***Disporum smithii* (Hooker) Piper**

Large-flowered Fairy Bell

DESCRIPTION. — *Stem:* Pubescent to more or less glabrous, 3–10 dm. tall. *Leaves:* Lanceolate to ovate, acute to acuminate, 4–12 cm. long, lower surface and margins sparsely pubescent with long hairs or entirely glabrous. *Inflorescence:* 2–6 flowers in a cluster. *Flowers:* 1–3 cm. long, creamy white. *Perianth:* Cylindrical; segments oblong-linear, slightly gibbous at base. *Stamens:* Included, equalling or slightly shorter than the style. *Gynœcium:* Style pubescent throughout, 3-lobed at apex. *Fruit:* Broadly ellipsoidal red berry with short beak. *Seeds:* 5–9, about 4 mm. long.

HABITAT.—Damp woods.

SEASON.—May to June.

RANGE. — Vancouver Island to central California along the coast.

DISTRIBUTION IN BRITISH COLUMBIA.—Rare, known only from southern Vancouver Island.

COMMENTS.—Our only species with included stamens.

***Disporum trachycarpum* (Wats.) B. & H.**

Rough Fruited Fairy Bell

DESCRIPTION.—*Stems:* Up to 7 dm. tall, usually pubescent at least when young. *Leaves:* Ovate, acute, 3–9 cm. long, lower surface and margins moderately pubescent with flattened hairs, becoming glabrate at maturity, upper surface glabrous. *Flowers:* 1–2, creamy white, 9–14 mm. long. *Perianth:* Narrowly campanulate, segments oblong, linear, slightly gibbous at base. *Stamens:* Equalling or slightly exceeding perianth; filaments 3 times as long as the anthers. *Gynœcium:* Ovary broadly ovoid, becoming 3-lobed, papillose; style filiform about as long as the stamens, glabrous or pubescent; stigma 3-cleft or occasionally entire. *Fruit:* Orange to bright red, subglobose berry, usually conspicuously papillose. *Seeds:* Commonly 6–12.

HABITAT.—Shady woods.

SEASON.—April to June.

Disporum trachycarpum (Wats.) B. & H. Rough fruited fairy bell.

RANGE. — British Columbia and Alberta, south to Arizona, New Mexico, east to North Dakota, South Dakota and Nebraska.

DISTRIBUTION IN BRITISH COLUMBIA.—In the dry Interior east of the Coast Mountains and as far as about latitude 56°.

COMMENTS.—May be confused with *D. hookeri* var. *oreganum*, from which it can be distinguished by its papillose more than 6-seeded fruit, in contrast to a glabrous or pubescent fewer than 6-seeded fruit. The cilia of the leaf margins, if present, spreading, not pointing sharply forward, and the apices of the leaves are acute rather than long acuminate.

ERYTHRONIUM L.

Perennial from membranous scaled corms. Stem unbranched, bearing 2, often unequal, leaves below the middle. Flowers conspicuous, nodding, bractless, solitary or in few-flowered racemes. Perianth-segments free, lanceolate to oblanceolate. Stamens 6, shorter than the perianth, filaments variously dilated. Ovary sessile, 3-loculed; style filiform or somewhat thickened above; stigma 3-lobed or entire. Capsule obovoid or oblong. (From the Greek, in allusion to the red flowers of some species.)

A genus of 15 species, all but one being North American.

A. Leaves not mottled, bright yellow-green; flowers white or golden yellow; plants of high elevations.
  B. Flowers golden yellow; extremely abundant, particularly in the southern Interior ..... *E. grandiflorum*
  BB. Flowers white; rare species of coastal mountains ..... *E. montanum*
AA. Leaves conspicuously mottled with green and dark brown; flowers white or pink, never golden yellow.
  B. Flowers white; southeastern Vancouver Island and adjacent mainland ..... *E. oreganum*
  BB. Flowers pink; western and northern Vancouver Island only ..... *E. revolutum*

Erythronium grandiflorum Pursh Yellow Avalanche Lily

SYNONYM.—*E. parviflorum* (S. Wats.) Gooding.

DESCRIPTION.—*Corm:* Long and slender. *Stem:* Scapose, 15–30 cm. tall. *Leaves:* 10–20 cm. long, oblong-elliptic and

Erythronium grandiflorum Pursh. Yellow avalanche lily.

acutish or oblanceolate and obtuse, attenuate to a narrowly winged petiole. *Inflorescence:* Usually a single flower, sometimes more. *Perianth:* Golden yellow; segments lanceolate, acuminate, strongly recurved, 2–4 cm. long. *Stamens:* Filaments 10–12 mm. long, somewhat wider below; anthers dark red or quite pale yellow. *Gynœcium:* Style long and slender, sometimes somewhat enlarged above and stouter; stigma usually 3-cleft with recurved lobes. *Seeds:* Capsule obovoid, more or less retuse, about 3 cm. long and 1 cm. broad.

HABITAT.—Open alpine and subalpine areas.

SEASON.—April to August, depending on the altitude.

RANGE. — British Columbia to Alberta, south to Montana, Wyoming, Utah, and Oregon.

DISTRIBUTION IN BRITISH COLUMBIA.—Common south of latitude 52° on the mountains and in high valleys.

COMMENTS.—Bulbs were much used as food by the Indians. Our only yellow-flowered species occurs in two forms; the one with red anthers is apparently only found east of the Cascades.

***Erythronium montanum* S. Wats. White Avalanche Lily**

DESCRIPTION.—*Corm:* Rather slender, about 3.5 cm. long, 4–5 mm. thick, the button-like scars of old corms retained in a crowded chain for many years. *Stem:* Scapose, 15–35 cm. tall. *Leaves:* 10–15 cm. long, commonly broad- to ovate-lanceolate, acute, usually abruptly narrowed to a slender, almost wingless petiole often nearly as long as the blade. *Inflorescence:* Frequently only a single flower, but sometimes several. *Flowers:* Pure white except for some yellow at base of the perianth. *Perianth:* Segments delicate in texture, lanceolate to broadly lanceolate, acuminate, 25–40 mm. long, 8–11 mm. broad, somewhat recurved. *Stamens:* Filaments very slender, scarcely dilated below; anthers golden yellow. *Gynœcium:* Style slender, usually considerably longer than the stamens; stigma distinctly 3-lobed, lobes recurving. *Fruit:* Capsule 2.5–3.0 cm. long, 12 mm. in diameter, long obovate, retuse.

HABITAT.—Alpine meadows.

Erythronium montanum S. Wats. White avalanche lily.

Erythronium oreganum Applegate. White fawn lily.

SEASON.—July to August.

RANGE.—Southern British Columbia, south to Oregon, west of Coast Mountains.

DISTRIBUTION IN BRITISH COLUMBIA.—Very rare, known only from Mount Waddington.

COMMENTS.—This species has a most distinctive leaf with its broad blade, abruptly narrowed base, and long slender petiole. The very slender undilated filaments are also diagnostic. To be looked for at high elevations on our coastal mountains. It is our only white-flowered alpine species.

***Erythronium oreganum* Applegate** **White Fawn Lily**

SYNONYMS.—*E. giganteum* of Abrams, *E. grandiflorum* var. *albiflorum* of Henry.

DESCRIPTION.—*Corm:* About 5 cm. long. *Stem:* Scapose 15–30 cm. tall. *Leaves:* 12–15 cm. long, mottled, lanceolate or oblong-lanceolate, often oblong-elliptic; apex often obtuse; petiole short winged. *Inflorescence:* A single flower as a rule, occasionally more. *Flowers:* Pure white, marked with orange-yellow at the base. *Perianth:* Segments 35–47 mm. long, broadly lanceolate, margins often sinuate, long acuminate. *Stamens:* Filaments broadly dilated; anthers golden yellow. *Gynœcium:* Style elongated slender, longer than the stamens; stigma deeply 3-lobed with the lobes recurved. *Fruit:* Capsule about 3.5 cm. long, 8 mm. in diameter, narrowly obovoid, retuse.

HABITAT.—Grassy ledges and openings in damp woods.

SEASON.—April to May.

RANGE.—Southern British Columbia to southern Oregon.

DISTRIBUTION IN BRITISH COLUMBIA.—Southeastern Vancouver Island, Gulf Islands and adjacent mainland, lower Fraser Valley west of the Cascade Mountains.

COMMENTS.—Similar to *E. revolutum* in the mottling of its leaves but readily distinguished by its white flowers. The ranges of the two species scarcely overlap.

Erythronium revolutum Smith. Pink fawn lily.

***Erythronium revolutum* Smith** **Pink Fawn Lily**

SYNONYM.—*E. grandiflorum* var. *smithii* Hook.

DESCRIPTION.—*Corm:* Thick, often with the remains of old corms in a rhizome-like chain. *Stem:* Scapose 12–35 cm. tall. *Leaves:* 15–20 cm. long, mottled, mostly broadly lanceolate, widest near the middle, acute or obtuse, rather abruptly attenuate to a narrowly winged petiole. *Inflorescence:* A single flower, occasionally more. *Flowers:* Rich rose pink without, paler within. *Perianth:* Segments linear-lanceolate, acuminate, acute or obtuse, 30–45 mm. long, strongly recurved, often creamy or yellowish at the base. *Stamens:* Filaments broadly dilated below, enveloping the ovary; anthers bright yellow. *Gynœcium:* Style long and filiform; stigma deeply 3-lobed with the lobes strongly divided. *Fruit:* Capsule oblong, with an abruptly narrowed base, 3–4 cm. long, 5 mm. wide.

HABITAT.—Forest openings and grassy places.

SEASON.—April to May.

RANGE.—South coastal British Columbia, south to California.

DISTRIBUTION IN BRITISH COLUMBIA.—Limited to Vancouver Island, Valdez Island, and reported at Kingcome Inlet on the mainland.

COMMENTS.—Our only pink-flowered species.

FRITILLARIA L.

Stems glabrous, erect and unbranched, from scaly bulbs. Stem leaves either in whorls or alternate, lanceolate or linear, sessile. Flowers in racemes, or solitary and terminal, leafy-bracted. Perianth campanulate or tubiform, of 6 free similar segments that usually have a shallow gland or nectar-bearing area above the base. Stamens 6, included, anthers versatile. Style entire or trifid. Capsule membranous, 6-angled or winged. (From Latin *fritillus*, a dice box, perhaps in allusion to the shape of the capsule.)

A genus of about 50 species in north temperate regions.

Fritillaria camschatcensis (L.) Ker-Gawl. Rice root.

A. Flowers yellow; stigma entire; stamens nearly equal the perianth segments ..... *F. pudica*

AA. Flowers dark, brownish-purple; stigmas deeply trifid; stamens about one-half length of the perianth segments.

Flowers unmottled, lamellate on inner surface; capsules not winged ..... *F. camschatcensis*

Flowers clearly mottled, not lamellate on the inner surface; capsules broadly winged ..... *F. lanceolata*

Fritillaria camschatcensis (L.) Ker-Gawl. — Rice Root

DESCRIPTION.—*Bulb:* Several large fleshy scales and numerous rice-grain bulblets. *Stem:* Stout, 2.5–5.0 dm. tall, unbranched. *Leaves:* Often in 3 whorls toward the upper part of the stem, 5–10 in a whorl, lanceolate, 5.0–7.5 cm. long, 7–20 mm. wide. *Flowers:* 1–7, often 2, short-pedicelled, close together. *Perianth:* Dark green-bronze to purple-brown, rarely mottled; segments usually with lamellæ on the inner surface, lanceolate to oblong-lanceolate, 25–27 mm. long, with dark, oblong, waxy purple gland at base. *Stamens:* ½ to ⅔ length of style. *Style:* Deeply cleft. *Fruit:* Capsule, not winged.

HABITAT.—Damp open places.

SEASON.—April to July.

RANGE.—Alaska south along the coast to Washington, also in Japan and Kamchatka.

DISTRIBUTION IN BRITISH COLUMBIA.—Common along the coast and sporadically inland up the Skeena and Bulkley Valleys as far as Aleza Lake.

COMMENTS.—Distinguished by the compactness of the inflorescence, the absence of mottling of the flowers, the longitudinal lamellæ on the inner surface of the perianth, and the unwinged capsule.

Fritillaria lanceolata Pursh — Mission Bells, Rice Root

DESCRIPTION.—*Bulb:* Few large scales and many rice-grain bulblets. *Stem:* 2–8 dm. tall. *Leaves:* 6–9 in 2 or 3 whorls on upper part of stem, or scattered, ovate-lanceolate, 4.5–10.0 cm. long, 5–30 mm. wide. *Flowers:* Nodding, often single, if more

Fritillaria lanceolata Pursh. Mission bells, rice root.

than one, racemose with rather long pedicels. *Perianth:* Dark purple usually mottled with greenish-yellow, segments ovate to oblong, 20–40 mm. long, with a conspicuous elongated yellowish-green gland extending from the base. *Stamens:* ½ to ⅔ length of the style. *Style:* Deeply cleft. *Fruit:* Capsule, broadly winged on the angles.

HABITAT.—Damp grassy places in the open.

SEASON.—April to June.

RANGE.—Southern British Columbia to Idaho, south along coast to California.

DISTRIBUTION IN BRITISH COLUMBIA.—Apparently limited to the southwestern portion of the Province from Kamloops and Sicamous south through the Nicola and Okanagan Valleys, the lower Fraser Valley, and southeastern Vancouver Island south from Courtenay and the adjacent mainland.

COMMENTS.—Can be identified by its commonly single nodding flower, or if more than one the flowers are widely separated and long-pedicelled. The perianth is usually conspicuously mottled and completely lacks lamellæ on the inner surfaces, capsule with broad wings.

Fritillaria pudica (Pursh) Spreng.

Yellow Bell, Yellow Snowdrop

DESCRIPTION.—*Bulb:* 1–3 cm. long with a few fleshy scales and many small rice-grain bulblets. *Stem:* 9–25 cm. tall. *Leaves:* Alternate, 2–8, sometimes nearly verticillate, linear to lanceolate, 2–10 mm. wide, glabrous. *Flowers:* 1–2, campanulate, nodding, yellow to orange sometimes with brown veins on outside, turning brick red in age. *Perianth:* 15–19 mm. long, 4–7 mm. wide, basal gland small, green. *Stamens:* 6, about from ½ length to nearly the same length as the perianth segments. *Ovary:* Style nearly equalling the segments, stigma nob-like. *Fruit:* Capsule, obovate to oblong, about 18 mm. long, erect.

HABITAT.—Dry well-drained flats and slopes.

SEASON.—April to May.

Fritillaria pudica (Pursh) Spreng. Yellow bell, yellow snowdrop.

RANGE.—Southern British Columbia to Montana and Wyoming, south to California and New Mexico.

DISTRIBUTION IN BRITISH COLUMBIA.—Limited to the hot dry valleys of the Interior from Sicamous southward.

COMMENTS.—In the Interior the yellow bell is one of the most welcome harbingers of spring. In the Provincial Museum there is a single collection from Mount Arrowsmith, V.I. It is possible that this is an error due to labels becoming switched. In an area so frequently visited by botanists, it is very unlikely to have been overlooked.

LILIUM L.

Herbaceous perennial with scaly bulbs. Stem simple, tall and leafy. Leaves narrow, simple, sessile, whorled or alternate. Flowers showy, erect or nodding, solitary or numerous, in a terminal raceme. Perianth campanulate or funnel-form, the 6 segments free, spreading or recurved, each with a nectary near the base. Stamens 6, filaments filiform, shorter than the perianth, anthers versatile. Ovary 3-loculed, style long with a 3-lobed stigma. Capsule oblong or obovoid. Seeds flat, numerous in 2 rows in each cell of the ovary. (From Greek *lirion*, the classical name for lily.)

A genus of about 90 species widely distributed in the north temperate zone.

Flowers erect, solitary or subumbellate; perianth segments 5–7 cm. long, contracted into a claw ..... *L. philadelphicum*
Flowers nodding, several, racemose; perianth segments 3–4 cm. long, not clawed ..... *L. columbianum*

Lilium columbianum Hanson Columbia Lily, Tiger Lily

SYNONYM.—*L. parviflorum* (Hook.) Holz.

DESCRIPTION.—*Bulb:* 3–5 cm. in diameter, ovoid, scales white, lanceolate, thick, closely appressed. *Stem:* Slender, up to 1 m. or more tall, glabrous. *Leaves:* Lanceolate to oblanceolate, 4.5–10.0 cm. long, 15–25 mm. wide, acutish, glabrous, in whorls of 6–9 or the upper ones scattered. *Inflorescence:* Racemose or whorled below; pedicels slender, 12–15 cm. long. *Flowers:* Few to many, nodding. *Perianth:* Segments recurved for about half their length,

Lilium columbianum Hanson. Columbia lily, tiger lily.

Lilium philadelphicum L. Wood lily, chalice cup lily.

bright reddish-orange with maroon spots, 3.5–6.0 cm. long, 8–12 mm. wide. *Stamens:* Slightly longer than the style, anthers 4–6 mm. long, versatile, yellow. *Ovary:* 12–16 mm. long. *Fruit:* Capsule, 3–5 cm. long, oblong, acutely 6-angled.

HABITAT.—Damp open woods and meadows.

SEASON.—June to July.

RANGE.—British Columbia to Idaho, south to northern California.

DISTRIBUTION IN BRITISH COLUMBIA.—Throughout, south of latitude 54° N., less common in the dry Columbia Valley.

COMMENTS.—Readily distinguished by its nodding flowers with recurved perianth.

***Lilium philadelphicum* L.** **Wood Lily, Chalice Cup Lily**

SYNONYMS.—*L. umbellatum* Pursh, *L. montanum* A. Nels.

DESCRIPTION.—*Bulb:* 2–3 cm. in diameter, scales white, thick, rather narrowly lanceolate. *Stem:* Up to 1 m. tall but mostly about half this height, glabrous. *Leaves:* Linear to lanceolate, glabrous, alternate below but whorled at the upper 1–3 nodes. *Inflorescence:* Umbellate, of 1–5 flowers. *Flowers:* Large and showy, open, campanulate, erect. *Perianth:* Segments similar, 5–7 cm. long, usually red, marked by purple-black spots within, tapering into a conspicuous claw. *Stamens:* 4–5 cm. long, usually about the same length or shorter than the style. *Gynœcium:* Style slender, stigma capitate but 3-lobed. *Fruit:* Capsule 3.5–5.0 cm. long, rounded at summit, tapering somewhat below, terete, not acutely 6-angled.

HABITAT.—Open woods and grassy places.

SEASON.—June to July.

RANGE.—British Columbia to Maine, south to Nebraska, Kentucky, and West Virginia.

DISTRIBUTION IN BRITISH COLUMBIA.—Limited to the Columbia Valley from Kinbasket Lake southwards, along the Kicking Horse River east from Golden, and in the Peace River District.

COMMENTS.—Easily recognized by its upright flower with conspicuously clawed perianth segments. Our western form of this

species with its narrower, mostly scattered leaves is sometimes designated as var. *andinum* (Nutt.) Ker.

LLOYDIA SALISB.

Dwarf, from a small tunicate bulb at the end of a rhizome. Leaves narrowly grass-like. Flowers solitary or sometimes few in a terminal raceme. Perianth segments with a transverse fold-like gland near the base. Stamens 6, free, on awl-shaped filaments. Ovary 3-angled, stigma 3-lobed, ovules many. Capsule loculicidally dehiscent at the apex only. (Named for Edward Lloyd (1660–1709), a British botanist.)

A genus of 12 species, all European or Asiatic except one.

Lloydia serotina (L.) Reichenb. — Alp Lily

DESCRIPTION.—*Bulb:* Somewhat oblong, covered with fibrous scales, at the end of a creeping rootstock. *Stem:* Slender, erect, 4–15 cm. tall. *Leaves:* Few, thick, narrowly linear, basal ones about as long as the stem. *Flowers:* Solitary or sometimes 2, broadly turbinate. *Perianth:* Yellowish-white, purple-veined, tinged with rose on the outside, about 1 cm. long, segments oblong, obtuse. *Stamens:* About ⅔ length of perianth segments, filaments slender, anthers 1 mm. long. *Gynæcium:* Style about 2 mm. long. *Fruit:* Capsule broadly ovoid, about 7 mm. long.

HABITAT.—Alpine meadows and rocky slopes.

SEASON.—June to August.

RANGE.—Alaska to Oregon, Colorado, Nevada and New Mexico, Arctic Eurasia.

DISTRIBUTION IN BRITISH COLUMBIA.—Abundant at high altitudes in the extreme north, rare and scattered in southern alpine regions.

COMMENTS. — This delicate little plant is easily overlooked when not in flower. Is probably more common than collections suggest.

Lloydia serotina (L.) Reichenb. Alp lily.

Maianthemum canadense Desf. Wild lily-of-the-valley.

MAIANTHEMUM WEBER

Low herbs from slender creeping rootstocks. Stems simple, erect, glabrous. Leaves few, broad, mostly cordate, glabrous or pubescent. Flowers small, white, racemose. Floral parts in 4's. Stigma 2-lobed or cleft. Fruit a 1–2-seeded globose berry. (From the Greek, meaning May flower.)

A circumboreal genus of only 3–4 species.

Leaves subsessile; blades ciliate, pubescent below, cordate-clasping with narrow sinus ..... *M. canadense*
Leaves distinctly petioled; blades glabrous, broadly sagittate with rounded auricles, sinuses deep and open ..... *M. dilatatum*

Maianthemum candense Desf. — Wild Lily-of-the-valley

DESCRIPTION.—*Rhizome:* Filiform, branched, extensively creeping. *Stem:* Erect, 5–25 cm. tall, pubescent at least above. *Leaves:* Cordate, ovate-oblong to narrowly ovate, 2–3, lowermost stem leaf 2–10 cm. long by 1.5–5.0 cm. broad, pubescent on lower surface. *Inflorescence:* Loose, cylindrical, often many-flowered raceme. *Flowers:* White on spreading pedicels, mostly single or two at a node. *Perianth:* Segments 2 mm. long, oblong, obtuse, later becoming reflexed. *Stamens:* Distinctly shorter than the perianth. *Gynœcium:* Style stout, 1 mm. or less long. *Fruit:* Pale red berry, 3–4 mm. in diameter.

HABITAT.—Woods and recent clearings.

SEASON.—June to July.

RANGE. — Northern British Columbia to Labrador, south through Alberta to Iowa, Ohio, and Pennsylvania.

DISTRIBUTION IN BRITISH COLUMBIA.—In east central region only, south along the Fraser to about Quesnel and at Boat Encampment at the Big Bend of the Columbia River. The only form east of the Rocky Mountains, where it is quite common.

COMMENTS.—Our western variety, which is crisp pubescent on the lower surface of the leaves and upper portions of the stem, has been named var. *interius* Fern.

Maianthemum dilatatum (Wood) Nels. & Mac Br.
Two-leaved Solomon's seal.

***Maianthemum dilatatum* (Wood) Nels. & MacBr.**

Two-leaved Solomon's Seal

SYNONYM.—*M. bifolium* D.C.

DESCRIPTION.—*Rhizome:* Slender, branching. *Stem:* Erect, 15–30 cm. tall, glabrous. *Leaves:* Glabrous, those on sterile shoots round-cordate, 5–10 cm. wide with petiole 5–15 cm. long; those on fertile stem, usually 2, cordate to sagittate with large rounded auricles, 5–8 cm. wide, petioles 1.5–4.0 cm. long. *Inflorescence:* Short peduncled raceme of many flowers. *Flowers:* White, 2–4 mm. long, usually in fascicles on spreading pedicels. *Perianth:* Segments 2–3 mm. long, oblong, obtuse, becoming reflexed. *Stamens:* Shorter than the segments. *Gynæcium:* Style stout, 1 mm. long. *Fruit:* Globose, red berry, 5–6 mm. in diameter, 1–4-seeded.

HABITAT.—Moist shaded places.

SEASON.—May to July.

RANGE.—Alaska to Idaho, south to California.

DISTRIBUTION IN BRITISH COLUMBIA.—West of Coastal Mountains only.

COMMENTS.—Includes the form known as var. *kamtschaticum* (Gmel.) Jepson. Recognizable by its large glabrous leaves with broadly rounded auricles.

SMILACINA DESF.

Perennial herbs from creeping rootstocks. Stems simple, scaly below, leafy above. Leaves alternate, short-petioled or sessile, lanceolate or ovate. Inflorescence a terminal raceme or panicle. Flowers white, small, perianth of 6 equal spreading segments. Stamens 6, inserted at the base of the perianth segments, filaments slender, anthers small and ovate. Ovary 3-celled, sessile, subglobose, style columnar, stigma 3-grooved or 3-lobed. Fruit a globular berry with usually 1 or 2 subglobose seeds. (Diminutive of *Smilax*, an ancient Greek name of uncertain application.)

A genus of about 25 species native to North America, Central America, and Asia.

Smilacina racemosa (L.) Desf. False spikenard.

A. Inflorescence paniculate; flowers subsessile, numerous ..... *S. racemosa*
AA. Inflorescence racemose; pedicels equal or longer than the flowers; flowers few.
Leaves more than 4, sessile, and abruptly narrowed at the base ..... *S. stellata*
Leaves 2–4, tapering to a somewhat sheathing base ..... *S. trifolia*

Smilacina racemosa (L.) Desf. False Spikenard

SYNONYMS.—*S. amplexicaulis* Nutt., *S. brachypetala* Rydb.

DESCRIPTION.—*Rootstock:* Stout, fleshy, brownish, knotty, and elongated. *Stem:* Simple, 0.5–1.0 m. tall, stiffly arched ascending, puberulous with spreading hairs at least in the inflorescence. *Leaves:* Lanceolate to elliptic, usually broadest at the middle, 5–15 cm. long, abruptly short-petioled, often somewhat clasping and distichous. *Inflorescence:* Paniculate with many flowers and many branches, ovoid to pyramidal. *Perianth:* 1.5–3.0 mm. long, segments white or greenish. *Stamens:* Longer than the perianth segments; filaments inflated. *Fruit:* Globose berry about 5 mm. in diameter, at first mottled red and green, later all red or occasionally purple. *Seeds:* Often only 1, whitish.

HABITAT.—Damp woods and clearings.

RANGE.—British Columbia to Quebec, south to California, Arizona, and Georgia.

DISTRIBUTION IN BRITISH COLUMBIA. — General throughout from about latitude 56° N. southward.

COMMENTS.—Unmistakable in all stages due to the somewhat coarse appearance of its arching stems with large, more or less clasping leaves, and either a fluffy panicle of white flowers or a cluster of reddish berries.

Smilacina stellata (L.) Desf. Star-flowered Solomon's Seal

SYNONYMS.—*S. sessilifolia* (Baker) Nutt., *S. liliacea* (Greene) Wynd.

DESCRIPTION.—*Rootstock:* Slender, long and spreading, pale. *Stem:* Erect to arching, 2–6 dm. tall, puberulent, very leafy.

Smilacina stellata (L.) Desf. Star-flowered Solomon's Seal.

Leaves: Lanceolate to oblong, often somewhat acuminate, more or less clasping, 5–17 cm. long, flat or folded, often distichous, puberulent. *Inflorescence:* Simple, often a nearly sessile raceme with scattered pedicels nearly as long as the flowers. *Flowers:* Up to 18 in an inflorescence. *Perianth:* Segments 4–6 mm. long, white or greenish. *Stamens:* Shorter than the perianth segments. *Fruit:* Globose berry about 9 mm. in diameter, dark blue or red at maturity, at first light green with 6 blue longitudinal stripes. *Seeds:* 1–3, brownish.

HABITAT.—Open places, particularly on alluvial deposits.

SEASON.—May to June.

RANGE.—British Columbia to Newfoundland, south to New Mexico, Kansas, and Virginia.

DISTRIBUTION IN BRITISH COLUMBIA.—Common throughout in suitable habitats.

COMMENTS.—Often forms extensive colonies in open places; the sessile raceme of fairly long pedicelled flower is diagnostic. A very widespread and somewhat variable species. Several variants have been proposed as species, but all intergrade to such an extent that even their recognition as varieties does not seem warranted.

Smilacina trifolia (L.) Desf. Trifoliate Solomon's Seal

DESCRIPTION.—*Rootstock:* Very slender, extensively creeping, scaly, whitish. *Stem:* Weak, sterile shoots with 2 leaves and flowering shoots with 2–5 leaves, 5–20 cm. tall. *Leaves:* Oblanceolate to elliptic tapering to a subpetiolar base, glabrous, 3–13 cm. long. *Inflorescence:* A simple raceme, 2–12-flowered, pedunculate; pedicels much longer than the perianth, spreading. *Perianth:* Segments alike, about 3 mm. long, white to greenish-white. *Stamens:* Shorter than the perianth segments. *Fruit:* Berry about 5 mm. in diameter, dark red.

HABITAT.—Cold acid soil, particularly in sphagnum and peat bogs.

SEASON.—June to July.

Smilacina trifolia (L.) Desf. Trifoliate Solomon's Seal.

RANGE.—British Columbia to Labrador and Newfoundland, south to Minnesota, north Illinois, Michigan, and Pennsylvania.

DISTRIBUTION IN BRITISH COLUMBIA. — Fairly common in sphagnum bogs in northern half of the Province.

COMMENTS.—Probably more common in the muskegs of the Peace River region than our collections indicate. Might be mistaken for *Maianthemum*, but the latter differs in having the floral parts in 4's.

STENANTHIUM GRAY

Perennial from a scaled bulb. Stem glabrous, slender, with narrow, mostly basal, grass-like leaves. Flowers greenish, brownish, or purplish, nodding in a raceme or panicle. Perianth segments free, linear lanceolate, with recurved tips. Stamens 6; filaments wider toward the base; anthers kidney-shaped. Ovary superior, ovoid, with 3 styles. Capsule oblong-ovoid, 3-beaked. Seeds oblong, winged. (Greek *steno* (narrow) and *anthos* (flower).)

A genus with 4 North American species and 1 Asiatic.

Stenanthium occidentale A. Gray — Mountain Bells

DESCRIPTION.—*Bulb:* Ovoid, 1–2 cm. long. *Stem:* 3–5 dm. tall, sparingly leafy. *Leaves:* 12–28 cm. long, mainly basal, linear to oblanceolate with sheathing base. *Inflorescence:* Erect, terminal raceme, bracts lance-linear, scarious, pedicels slender, slightly longer than the bracts. *Flowers:* Narrow-campanulate, drooping, greenish- or brownish-purple, about 14 mm. long. *Perianth:* Segments narrowly lanceolate with recurved tip. *Stamens:* About 7 mm. long. *Fruit:* Capsule erect, 12–16 mm. long, attenuate into the elongated slender styles. *Seeds:* Oblong, flat, and winged, about 4 mm. long.

HABITAT.—Damp wooded slopes.

SEASON.—June to July.

RANGE.—British Columbia and Alberta, south to Washington, Montana, and in mountains of northern California.

Stenanthium occidentale A. Gray. Mountain bells.

DISTRIBUTION IN BRITISH COLUMBIA.—South from latitude 52° along the coast and in the Rocky Mountain Trench, otherwise only close to the boundary in the Interior.

COMMENTS.—The slender racemes of greenish to purple nodding flowers with recurved perianth segments are unmistakable.

STREPTOPUS MICHX.

Perennial from a rhizome. Leaves alternate, sessile or clasping. Flowers axillary, small, greenish-white to purple, solitary or in pairs. Perianth campanulate to rotate, segments essentially alike; stamens 6, adherent to the base of the perianth, filaments somewhat dilated at base, anthers apiculate or aristate. Ovary sessile, 3-celled, style slender, 3-cleft, 3-lobed or entire. Fruit a red globose or oval berry.

North American and east Asiatic genus of 7 species. (Named from Greek *streptos* (twisted) and *pous* (foot). Alludes to twisted peduncle of some species.)

A. Large, usually branching plants upwards of 1 m. in height; flowers greenish-white; nodes glabrous ..... *S. amplexifolius*

AA. Small, rarely branching plants seldom more than 3 dm. in height, flowers rose; nodes fringed.

Perianth campanulate; leaf margins with multicellular, irregularly spaced cilia, or entire ..... *S. roseus*

Perianth rotate; leaf margins with microscopic unicellular hyaline, closely crowded teeth ..... *S. streptopoides*

Streptopus amplexifolius (L.) D.C. Twisted Stalk

DESCRIPTION.—*Rhizome:* Thick, short, horizontal, covered with fibrous roots. *Stem:* 4–10 dm. high, glabrous, usually branching below the middle. *Leaves:* 5–14 cm. long, ovate to ovate-lanceolate, 2.5–4.5 cm. wide, acuminate, cordate clasping, glabrous, glaucous beneath. *Inflorescence:* Flowers axillary, solitary or in pairs, greenish-white, free portion of peduncles and pedicels 20–45 mm. long. *Perianth:* Segments 8–11 mm. long, narrowly lanceolate, acuminate, widely spreading or recurved. *Stamens:* Anthers awn-pointed. *Stigma:* Entire or slightly 3-lobed. *Fruit:* Red oval berry, 10–17 mm. long.

Streptopus amplexifolius (L.) D.C. Twisted stalk.

HABITAT.—Rich moist woods.

SEASON.—June to July.

RANGE.—Alaska to Greenland, south to California, Arizona, New Mexico, and east in mountains of North Carolina.

DISTRIBUTION IN BRITISH COLUMBIA.—Common throughout in suitable habitats.

COMMENTS.—Field marks are its relative coarseness, the leaves glaucous beneath with cordate, clasping bases, and the frequent occurrence of flowers in pairs. A very variable species in several details: the berries may range from dark red to pale yellow, the flowers vary in size, and the leaves may differ in microscopic details of the marginal teeth. Our commonest form is var. *denticulatus* Fassett.

Streptopus roseus Michx. Simple-stemmed Twisted Stalk

SYNONYM.—*S. curvipes* Vail.

DESCRIPTION.—*Rhizome:* Slender, horizontal. *Stem:* Up to 3–8 dm. tall, usually simple, nodes fringed. *Leaves:* Sessile but not clasping, lanceolate to ovate-lanceolate, acuminate, broadly rounded at base, margins entire, or with 16 or fewer cilia per centimetre. *Inflorescence:* Single axillary flowers. *Flowers:* Campanulate, rose coloured, free portion of peduncles and pedicels 1–3 cm. long. *Perianth:* Segments lanceolate up to 1 cm. long, spreading only near the apex, minutely glandular pubescent on inner surface. *Anthers:* 2-beaked. *Stigma:* 3-cleft. *Fruit:* Globose berry, about 8 mm. in diameter.

HABITAT.—Moist woods.

SEASON.—June to July.

RANGE.—Alaska to Labrador and Newfoundland south to Oregon and North Carolina.

DISTRIBUTION IN BRITISH COLUMBIA.—Found throughout the Province south of 56° N. latitude, but not as common as the preceding species.

COMMENTS.—Distinguished by its solitary rose-coloured campanulate flowers with 2-beaked anthers, fringed nodes, leaves not

Streptopus roseus Michx. Simple-stemmed twisted stalk.

glaucous beneath and with broadly rounded but not clasping bases. Another variable species, represented with us by var. *curvipes* (Vail) Fassett.

Streptopus streptopoides (Ledeb.) Frye & Rigg
Small Twisted Stalk

SYNONYM.—*Kruhsea streptopoides* (Ledeb.) Kearney.

DESCRIPTION.—*Rhizome:* Very slender, creeping. *Stem:* Simple, up to 20 cm. tall, glabrous, nodes fringed. *Leaves:* 3–5 cm. long, ovate-lanceolate, acuminate, rounded and slightly clasping at base, margins with microscopic closely crowded teeth. *Inflorescence:* Flowers solitary in leaf axils. *Flowers:* Rotate, rose-coloured, on slender recurved pedicels not more than 1 cm. long. *Perianth:* Segments 2 mm. long, ovate-lanceolate. *Stamens:* Less than half the length of perianth, anthers scabrous, acute. *Gynœcium:* Ovary, 3-celled, style absent, stigma sessile. *Fruit:* Globose, red berry, about 5 mm. in diameter.

HABITAT.—Subalpine regions.

SEASON.—July to August.

RANGE.—Alaska to northern Washington, also east Asia and Japan.

DISTRIBUTION IN BRITISH COLUMBIA.—Apparently rare, although widely collected south of 56° N. latitude.

COMMENTS.—Recognizable by its small size and rotate corolla. The western American representative of this species, that also occurs in eastern Asia, is var. *brevipes* (Baker) Fassett.

TOFIELDIA HUDS.

Herbaceous perennial. Rhizome short, horizontal or somewhat erect. Stem slender, scape-like. Leaves basal grass-like, 2-ranked, equitant. Inflorescence a compact terminal raceme or capitate, pedicels bracteate. Flowers small, greenish or whitish, perianth segments subequal, oblong or subovate, persistent, with 3 scarious somewhat united bractlets. Stamens 6, filaments slender,

Streptopus streptopoides (Ledeb.) Frye & Rigg. Small twisted stalk.

anthers ovate. Ovary sessile, 3-lobed above, styles 3, short recurved. Fruit a 3-lobed 3-beaked capsule; seeds numerous, either with or without thread-like appendages. (Named after Thomas Tofield (1730–1779), an English amateur botanist.)

A. Stems glandular-pubescent, at least in the inflorescence ..... *T. glutinosa*

AA. Stems glabrous, even in the inflorescence.

Stem leafless or at most with 1 small bract; involucre at the base of the pedicel; flowers greenish-whitish ..... *T. borealis*

Stem with 1 or more leaves; involucre at top of pedicel; flowers purplish ..... *T. coccinea*

***Tofieldia borealis* Wahlenb.** **Common False Asphodel**

SYNONYMS.—*T. palustris* of Am. Auth., *T. pusilla* (Michx.) Pers.

DESCRIPTION.—*Rhizome:* Vertical to horizontal, short, tufted, covered with fibrous remains of leaf bases. *Stem:* Scapose, glabrous, 5–18 cm. tall, sometimes with a single bract-like leaf about the middle. *Leaves:* Basal, tufted, gladiate, 2–9 cm. long, 1–3 mm. wide. *Inflorescence:* Capitate raceme, 5–15 mm. long in flower, considerably longer in fruit. *Flowers:* Short pedicillate, involucre at base of pedicel. *Perianth:* Segments greenish-white, narrowly oblong, about 2 mm. long. *Stamens:* Filaments dilated, about as long as the perianth; anthers yellow. *Ovary:* Styles 3; ovary oblong-globose, shorter than the perianth. *Fruit:* Capsule erect, about the length of the perianth, with 3 small beaks. *Seeds:* About 5 mm. long, unappendaged.

HABITAT.—Marshy meadows and low places in acid soil.

SEASON.—July to August.

RANGE.—Circumpolar; arctic-alpine.

DISTRIBUTION IN BRITISH COLUMBIA.—Not uncommon in the extreme northern part of the Province, also southward in the Rocky Mountains.

COMMENTS.—Easily recognized by its slender proportions, glabrous scape that usually lacks a stem-leaf, and short greenish capsule.

Tofieldia borealis Wahlenb. Common false asphodel.

Tofieldia coccinea Richardson. Northern false asphodel.

***Tofieldia coccinea* Richardson** **Northern False Asphodel**

DESCRIPTION.—*Rhizome:* Short erect, tufted and clothed with remains of old leaf bases. *Stem:* Scape-like, glabrous, often purplish in the upper part, 3.5–7.0 cm. tall, bearing at least 1 leaf. *Leaves:* Basal, numerous, grass-like, 2–5 cm. long, 2–3 mm. wide. *Inflorescence:* Short, dense raceme. *Flowers:* Short-pedicelled or sessile. *Perianth:* Greenish, usually strongly tinged with purple; segments obovate-oblanceolate, about 2 mm. long. *Stamens:* Filaments about as long as perianth segments, anthers frequently purplish. *Gynœcium:* Styles 3; ovary 3-lobed, somewhat globose, purplish, about same length as perianth segments. *Fruit:* Dark-purple capsule that becomes reflexed at maturity. *Seeds:* Numerous, without appendages.

HABITAT.—Said to be a pronounced calciphile of rocky places or gravelly clay.

SEASON.—July to August.

RANGE.—Kamchatka to Greenland, south in North America to approximately 56° N.; Arctic Eurasia.

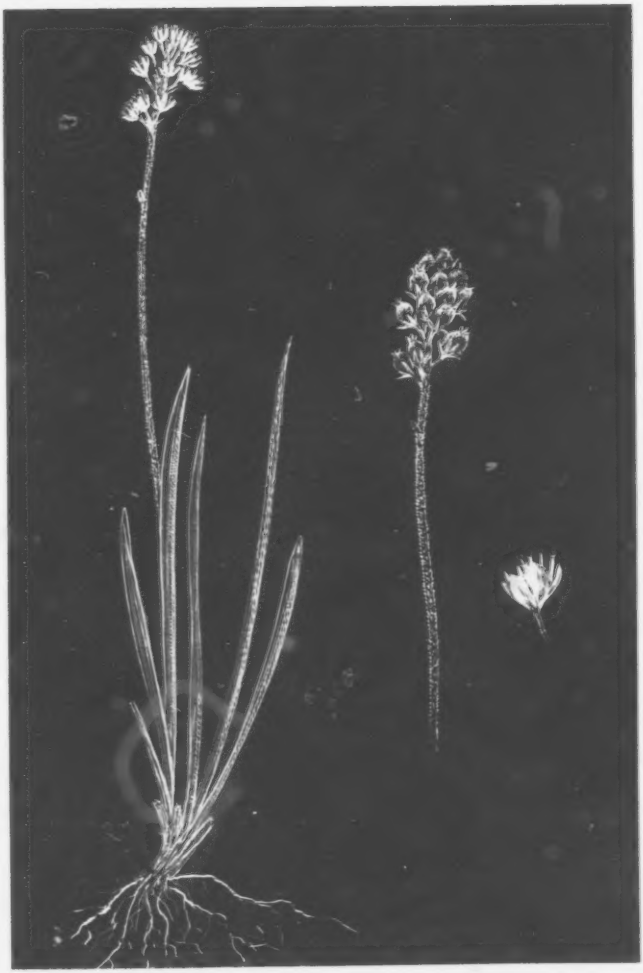
DISTRIBUTION IN BRITISH COLUMBIA.—Very rare, known only from near Fort Nelson, Muncho Lake on the Alaska Highway, and from Eutsuk Lake.

COMMENTS.—Recognizable by its small size, purple-tinged perianth, dark-purple capsule, and single leaf on the stem.

***Tofieldia glutinosa* (Michx.) Pers.** **Western False Asphodel**

SYNONYMS.—*T. intermedia* Rydb., *T. occidentalis* Wats.

DESCRIPTION.—*Rhizome:* Fairly stout, vertical, covered with fibrous remains of old leaf bases. *Stem:* Up to 5 dm. tall, glabrous or sparsely glandular to densely glandular-pubescent below the inflorescence. *Leaves:* 1–3 basal sheathing leaves up to 20 cm. long and 7 mm. wide, often with single stem leaf. *Inflorescence:* Compact, terminal raceme. *Flowers:* White, 2–3 together at each node and each subtended by a small ovate bractlet, pedicels glutinous, 3–6 mm. long. *Perianth:* Segments about 4 mm. long, oblan-



Tofieldia glutinosa (Michx.) Pers. Western false asphodel.

ceolate, inner somewhat narrower than the outer. *Stamens:* Equal to or slightly longer than perianth. *Gynœcium:* 3 coherent carpels but with styles and stigmas free, 5–6 mm. long, often purplish. *Fruit:* Capsule, 5–6 mm. long. *Seeds:* About 1 mm. long, surrounded by brownish, spongy, more or less inflated testa, with appendages at both ends.

HABITAT.—Wet places in the open.

SEASON.—July to August.

RANGE.—Alaska to Newfoundland, south to California, Minnesota, Indiana, Ohio, and North Carolina.

DISTRIBUTION IN BRITISH COLUMBIA.—General throughout in boggy places.

COMMENTS.—A very variable species that by some botanists has been split into as many as five. Easily recognizable with us by its relatively stout growth, glandular scape with usually a single leaf and large purplish capsule.

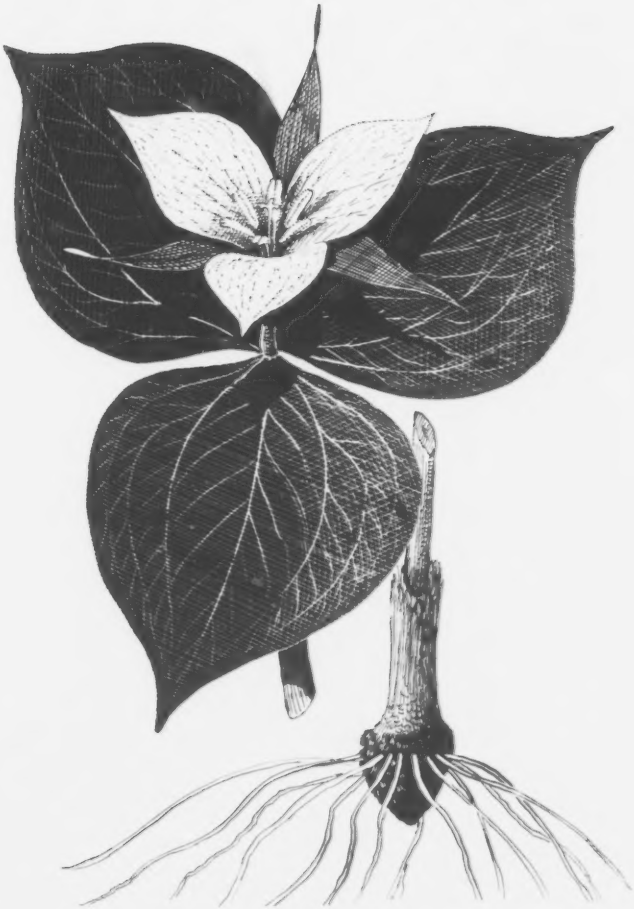
TRILLIUM L.

Rhizome short and stout. Stem erect, unbranched, bearing a whorl of 3 leaves just below the terminal flower. Leaves broad, rather conspicuously net-veined. Flowers solitary, sessile or stalked, perianth clearly in 2 series, the sepals green and leaf-like, the petals ranging from white through pink to dark purple, sometimes greenish. Ovary trilocular, with axil placentation. Stigma divided or trifid. Stamens 6, filaments short. Fruit green, a many-seeded berry. (Latin *tres* (three), alluding to the parts of the flower being in 3's.)

About 25 species of North American and eastern Asia, only 1 in our area.

Trillium ovatum Pursh — Trillium, Western Wake Robin

DESCRIPTION.—*Rhizome:* Horizontal, or somewhat erect, with obvious scars of previous stems. *Stem:* 2.0–4.5 dm. tall, glabrous, bearing a few scale-like leaves below. *Leaves:* 6–18 cm. long, broadly rhombic-ovate, acute or short acuminate, somewhat



Trillium ovatum Pursh. Trillium, western wake robin.

rounded at base, essentially sessile. *Flowers:* Solitary, pedicel erect, 3–7 cm. long. *Sepals:* 2.5–4.5 cm. long, oblong-lanceolate to narrowly lanceolate-acute. *Petals:* Equalling or slightly exceeding and broader than the sepals, white turning pink or purplish with age. *Stamens:* 6, anthers slightly longer than the filaments. *Fruit:* Narrowly winged, broadly ovoid, green, berry-like capsule.

HABITAT.—Rich damp woods.

SEASON.—April to May.

RANGE.—Southern British Columbia and Montana, south to Oregon and Central California.

DISTRIBUTION IN BRITISH COLUMBIA.—In suitable places south of latitude 50° N.

COMMENTS. — A variable species showing a number of odd forms; perhaps the most interesting of these is a very dwarf race that seems to be the only representative of the species on the west coast of Vancouver Island from Hesquiat Harbour to Kyuquot Bay. A very similar dwarf has also been collected at Hope, Kelowna and Nelson. As its status is not clear, the plant is being studied under cultivation.

TRITELEIA DOUGL.

Corm scales straw-coloured. Scapes slender, erect. Leaves flattened, keeled, all basal. Inflorescence umbellate with pedicels all about the same length. Stamens 6, all fertile, anthers versatile, not sagittate, not appressed to the style. Stigma not evidently lobed.

Stamens alternately attached at 2 different levels; perianth tubular and more or less inflated; flowers blue ..... *T. grandiflora*

Stamens all at the same level; perianth tube open, campanulate; flowers white ..... *T. hyacinthina*

Triteleia grandiflora Lindl. — Large-flowered Triteleia

SYNONYM.—*Brodiæa Douglasii* S. Wats.

DESCRIPTION.—*Corms:* Fibrous-coated. *Stem:* Scapose, 2–7 dm. tall, glabrous. *Leaves:* 2–several, linear, keeled, glabrous, 3–5 dm. long, 5–10 mm. wide. *Flowers:* 6–20 in umbels, pedicels 1–4 cm. long, ascending. *Perianth:* Broadly tubular, rounded at base,

Triteleia grandiflora Lindl. Large-flowered triteleia.

Triteleia hyacinthina (Lindl.) Greene. White triteleia, fools onion.

15–25 mm. long, segments all alike, divergent, oblong-ovate, bluish-purple to almost white. *Stamens:* 6, filaments broadly deltoid, upper row nearly twice as long as the lower and about equalling the pale-blue anthers. *Fruit:* Capsule, oblong-ovoid, 6–7 mm. long, style slightly shorter than the ovary, stipe about half as long as the ovary. *Seeds:* About 2 mm. long.

HABITAT.—Moist to dry places in the open.

SEASON.—May to July.

RANGE.—British Columbia to northern California, east to Montana, Wyoming, and Utah.

DISTRIBUTION IN BRITISH COLUMBIA. — Dry Interior valleys east of the Coast Mountains. There are a number of old records from several places near Victoria, but the species is now apparently extinct at most of them. It should be very carefully protected whenever found on Vancouver Island.

COMMENTS.—Occurs in large, showy colonies as does *Camassia,* but can be readily distinguished from this by its umbellate arrangement of flowers and tubular perianth.

Triteleia hyacinthina (Lindl.) Greene
White Triteleia, Fools Onion

SYNONYMS. — *Hesperocordum hyacinthinum* Lindl., *Brodiæa lactea* S. Wats., *B. hyacinthina* (Lindl.) Baker.

DESCRIPTION.—*Corm:* Fibrous-coated. *Stem:* Scapose, 3–6 dm. tall, smooth or somewhat scabrous. *Leaves:* Usually 2, equalling or shorter than the scapes, 6–12 mm. wide, glabrous. *Flowers:* Few–many in open umbels with hyaline bracts, pedicels 2–4 cm. long. *Perianth:* Open-campanulate; tube 2–4 mm. long; segments spreading, 7–12 mm. long, all alike, usually white or bluish with green mid-veins. *Stamens:* 6, filaments equal, deltoid, 2–4 mm. long; anthers yellow or blue, about half as long as the filaments. *Fruit:* Capsule, stipe about half length of ovary at anthesis. *Seeds:* About 1.5 mm. long.

HABITAT.—Low damp places.

SEASON.—June to August.

RANGE.—British Columbia to central California, east to Idaho.

DISTRIBUTION IN BRITISH COLUMBIA.—Common on southeastern Vancouver Island from Campbell River southward, on the Gulf Islands and adjacent mainland south from Sechelt. Easily recognized by its uniform umbel of rather large whitish flowers with a conspicuous midrib in the perianth segments.

VERATRUM L.

Tall, coarse, leafy perennial with short, stout rootstocks. Stem robust, clothed at the base with the fibrous remains of old leaf bases. Leaves large, broad with a clasping base, strongly veined, pubescent, as is the stem. Inflorescence a large terminal panicle. Flowers rather large, yellowish-green in ours. Fruit a 3-lobed 3-celled capsule containing a number of large flat, winged seeds. Roots are poisonous. A genus of about 40 species widely spread throughout the north temperate regions.

Veratrum viride Ait. — Green False Hellebore

DESCRIPTION.—*Rhizome:* Short, stout, erect, clothed with coarse fibrous remains of old leaf bases. *Stem:* Very stout, up to 2 m. tall, leafy, pubescent. *Leaves:* Acute, 12–28 cm. long, 7–15 cm. wide, sessile or nearly so, lower broadly elliptic, upper becoming successively narrower and acuminate, densely pubescent beneath. *Inflorescence:* Much-branched panicle 2–4.5 dm. long, lower branches spreading and somewhat drooping, densely pubescent. *Flowers:* Yellowish-green, often with a dark blotch at the centre, pedicels up to 5 mm. long, usually shorter than the bracts. *Perianth:* Segments oblanceolate to elliptic, acute 8–12 mm. long, somewhat narrowed to the base, woolly, pubescent on outside, margins ciliolate, serrulate. *Stamens:* About half the length of the perianth segments, erect, free from perianth even at the base. *Ovary:* Glabrous with persistent styles. *Fruit:* Capsule, ovoid-oblong, 16–24 mm. long, straw-coloured to dark brown. *Seeds:* Flat, up to 10 mm. long, with a conspicuous wing.

Veratrum viride Ait. Green false hellebore.

HABITAT.—Wet ground, particularly in subalpine regions.

SEASON.—Midsummer but varies with altitude.

RANGE.—Alaska to northern Oregon and eastward to the Atlantic coast.

DISTRIBUTION IN BRITISH COLUMBIA.—General at sub-alpine altitudes.

COMMENTS.—Our western form is often distinguished as *V. eschscholtzii* A. Gray. It differs in its tendency to have longer and more drooping lower branches in the panicle and in being more pubescent on the leaves. It is probably best regarded as *V. viride* Ait., var. *eschscholtzii* (A. Gray) Breitung.

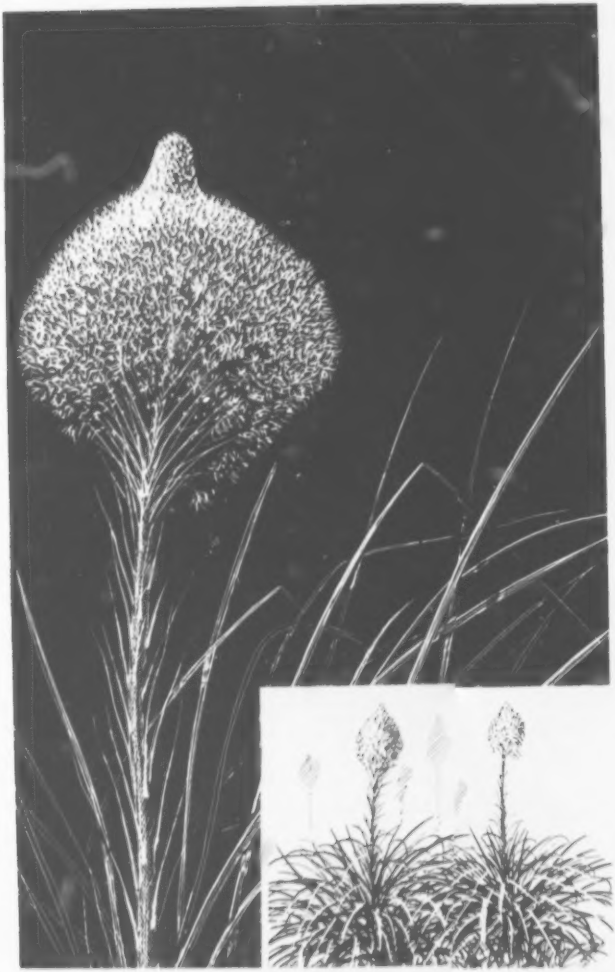
XEROPHYLLUM MICHX.

Large perennial herb with numerous rigid grass-like leaves arising from the base of a leafy stem. Flowers many, white, in a conspicuous terminal raceme. Perianth segments persisting after withering. Capsule ovoid, 3-lobed, 3-celled.

(Greek *xeros* (dry) and *phullon* (leaf), in allusion to its harsh dry foliage.) A North American genus of 2 or 3 species, one being on the Atlantic coast.

Xerophyllum tenax (Pursh) Nutt. Bear-grass

DESCRIPTION.—*Rhizome:* Short, stout, somewhat horizontal. *Stem:* Slender, up to 16 dm. high, with scattered ascending leaves. *Leaves:* Form a dense basal cluster in addition to those on the stem, 5–9 dm. long, 6–9 mm. broad at base and tapering to a stiff wiry tip with rigid finely serrulate margins, gradually shorter upwards passing into bracts. *Inflorescence:* Dense terminal raceme. *Flowers:* Numerous, white, fragrant; pedicels slender, up to 5 cm. long. *Perianth:* Segments free, persisting, 5–7-veined, glandless, spreading, 6–10 mm. long. *Stamens:* 6, filaments glabrous, slightly longer than the perianth. *Gynæcium:* Styles 3, longer than the ovary. *Fruit:* Capsule, acute, broadly ovoid, about 6 mm. long. *Seeds:* Narrowly oblong, 3–4 mm. long.



Xerophyllum tenax (Pursh) Nutt. Bear-grass.

HABITAT.—Open dry or peaty situations at middle to high altitudes.

SEASON.—July.

RANGE.—British Columbia to Wyoming, south to central California.

DISTRIBUTION IN BRITISH COLUMBIA.—Limited to the southeast corner of the Province.

ZYGADENUS MICHX.

Essentially glabrous, perennial herbs with slender stems arising from membranous-coated bulbs. Leaves linear, elongate, mostly basal. Inflorescence a raceme of white to yellowish or greenish-white flowers. Capsule 3-lobed, tipped by persistent styles. Seeds angled, numerous. (From Greek *zugos* (a yoke) and *aden* (gland), alluding to the pair of glands present in some species.)

About 20 species, all in North America except 1 in east Asia.

A. Ovary half inferior; gland of perianth distinctly bilobed; perianth segments at least 10 mm. long ..... *Z. elegans*

AA. Ovary superior; glands unlobed, less conspicuous; perianth segments usually less than 8 mm. long.

Upper cauline leaves without sheath, base somewhat clasping; perianth segments equally long-clawed ..... *Z. venenosus*

Upper cauline leaves with conspicuous papery sheaths; outer perianth segments sessile or short-clawed ..... *Z. gramineus*

Zygadenus elegans Pursh — White Camas

DESCRIPTION.—*Bulb:* Ovoid, tapering, up to 3 cm. long, scales membranous. *Stem:* Slender, 3–9 dm. tall, with few leaves, glaucous. *Leaves:* Keeled, 5–15 mm. wide, the lower up to 3 dm. long, the upper much shorter; bracts lanceolate, about 1 cm. long, purplish or greenish, scarious margined. *Inflorescence:* Open, simple or compound raceme, loosely flowered, 6–15 cm. long. *Flowers:* Greenish- or yellowish-white; pedicels 3–6 cm. long. *Perianth:* Segments about 10 mm. long, narrowly oblong-obovate, short-clawed, with a large 2-lobed gland just above the claw. *Stamens:*

Zygadenus elegans Pursh. White camas.

About equalling the perianth segments in length. *Fruit:* Oblong-ovoid capsule, 15–20 mm. long, longer than the erect withered perianth segments, styles persistent. *Seeds:* 5–6 mm. long.

HABITAT.—Damp meadows and open woods.

SEASON.—July to August.

RANGE.—Alaska to Oregon, east to Minnesota, Missouri, and California.

DISTRIBUTION IN BRITISH COLUMBIA. — Probably general throughout the Interior on suitable sites, not known from west of the Cascades and Coast Mountains, particularly abundant in the Kootenays.

COMMENTS.—Slightly poisonous to stock. The *Z. chloranthus* of Henry.

***Zygadenus gramineus* Rydb.** **Death Camas**

DESCRIPTION.—*Bulb:* Ovoid, about 4–5 cm. long, outer scales blackish. *Stem:* 3–8 dm. tall, slender. *Leaves:* Prominent, several basal, linear, channelled, finely scabrous margined, stem leaves usually 2, base with a long white hyaline sheath. *Inflorescence:* Many-flowered raceme, sometimes paniculate at base in vigorous plants. *Flowers:* Creamy white. *Perianth:* Narrowly ovate, obtuse or subacute, 4–5 mm. long, outer segments with short claw, inner with longer claw, margins of gland somewhat indefinite. *Stamens:* Exserted. *Fruit:* Oblong-elliptic capsule, 10–14 mm. long, style divergent; pedicels commonly erect. *Seeds:* Brown, irregularly fusiform, about 6 mm. long.

HABITAT.—Open places.

SEASON.—May to June.

RANGE.—Southern British Columbia to Alberta, south to Idaho, Colorado, and Utah.

DISTRIBUTION IN BRITISH COLUMBIA.—Mostly east of the Coast Mountains, particularly from Williams Lake south through the Okanagan Valley and in the Kootenays.

COMMENTS.—Said to be the most virulently poisonous species, causing the death of many sheep. This species is doubtfully distinct

Zygadenus gramineus Rydb. Death camas.

from *Z. venenosus* and is probably what Henry referred to as *Z. paniculatus*, but no specimens of the latter have been seen from British Columbia.

***Zygadenus venenosus* S. Wats.** **Death Camas**

DESCRIPTION.—*Bulb:* Ovoid, 2–3 cm. long, outer scales blackish. *Stem:* Rather slender, up to 6 dm. tall. *Leaves:* Several, linear, channelled, margins finely scabrous, stem leaves often more than 2, without sheathing base. *Inflorescence:* Many-flowered raceme, occasionally paniculate below in vigorous plants. *Flowers:* Creamy white. *Perianth:* Segments 5–8 mm. long, more or less equally clawed, blade obtuse, gland with comparatively thick margins. *Stamens:* Slightly longer than the perianth segments. *Fruit:* Cylindrical capsule, 12–15 mm. long. Styles divergent, pedicels erect or more commonly diverging. *Seeds:* Brown, irregularly fusiform, about 6 mm. long.

HABITAT.—Wet meadows, or rocky ledges wet in the spring.

SEASON.—May to June.

RANGE.—Southern British Columbia to California, Idaho, Utah, and Nevada.

DISTRIBUTION IN BRITISH COLUMBIA.—Southeastern Vancouver Island and lower Fraser Valley, occasional in the Okanagan.

COMMENTS.—Poisonous, especially the bulbs and seeds.

EXCLUDED SPECIES

Allium reticulatum Fraser (Henry, Flora of Southern British Columbia) is *A. textile* Nels. and McBr. No basis found for including it in the flora of British Columbia.

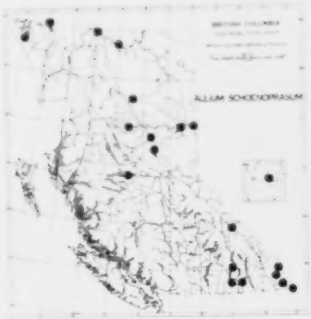
Erythronium howellii S. Wats. No specimens are known that support Henry's report of this species from Barclay Sound and Cowichan Lake. Its occurrence in our area is unlikely as it is only authentically reported from Oregon.

ALLIUM ACUMINATUM

ALLIUM CERNUUM

ALLIUM CRENULATUM

ALLIUM GEYERI


ALLIUM SCHOENOPRASUM

BRODIAEA CORONARIA

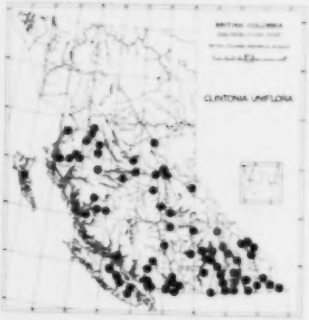
BRITISH COLUMBIA
CALOCHORTUS APICULATUS

BRITISH COLUMBIA
CALOCHORTUS
MACROCARPUS

BRITISH COLUMBIA
CAMASSIA LEICHTLINI

BRITISH COLUMBIA
CAMASSIA QUAMASH

BRITISH COLUMBIA
DISPORUM HOOKERI
VAR OREGANUM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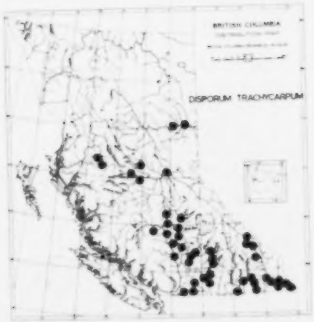

DISPORUM TRACHYCARPUM

ERYTHRONIUM GRANDIFLORUM

ERYTHRONIUM MONTANUM

ERYTHRONIUM OREGONUM

ERYTHRONIUM REVOLUTUM

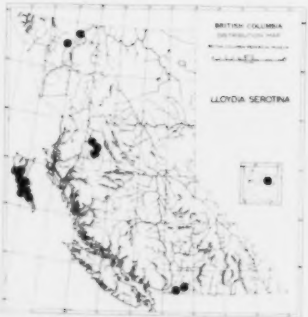
BRITISH COLUMBIA
FRITILLARIA
CAMSCHATCENSIS

BRITISH COLUMBIA
FRITILLARIA LANCEOLATA

BRITISH COLUMBIA
FRITILLARIA PUDICA

BRITISH COLUMBIA
LILIUM COLUMBIANUM

BRITISH COLUMBIA
LILIUM PHILADELPHICUM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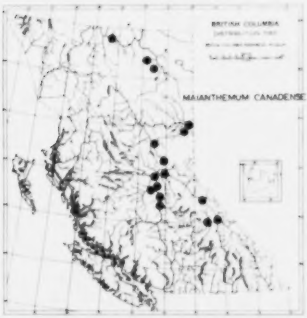
LLOYDIA SEROTINA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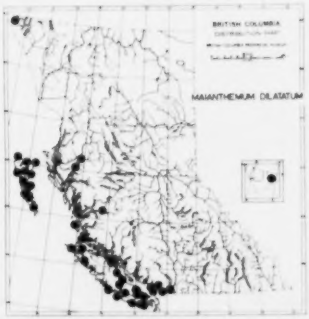
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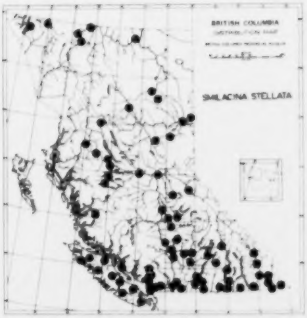
BRITISH COLUMBIA
SMILACINA RACEMOSA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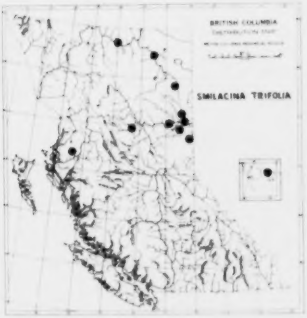
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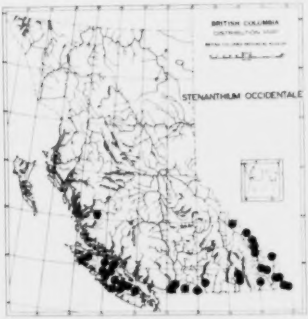
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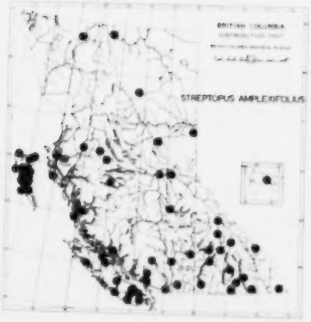
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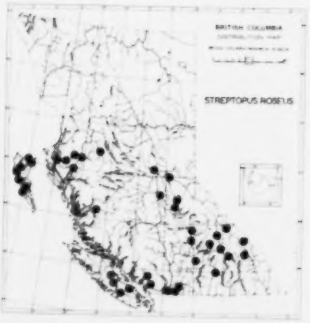
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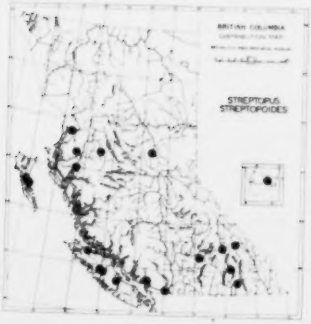
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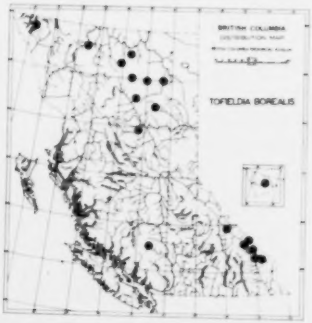
STREPTOPUS
STREPTOPOIDES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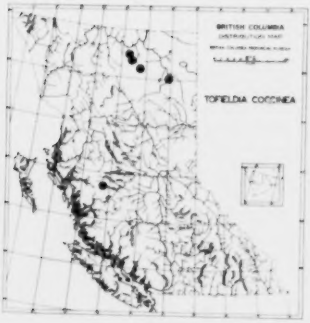
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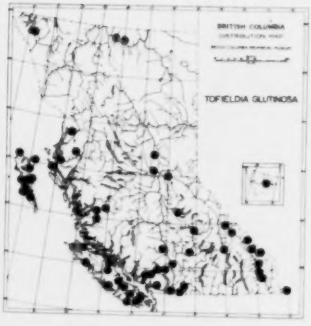
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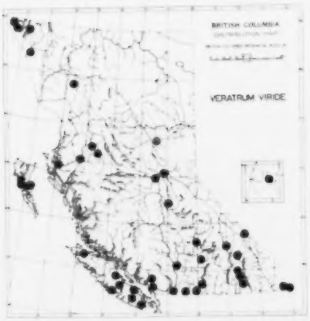
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VERATRUM VIRIDE

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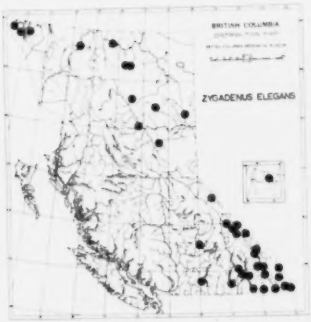
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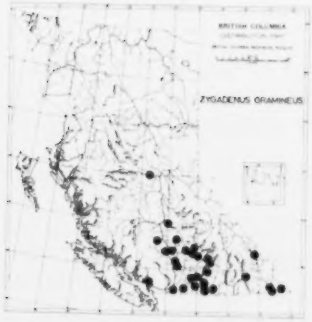
ZYGADENUS VENENOSUS


BRITISH COLUMBIA
ZYGADENUS GRAMINEUS

GLOSSARY

Acuminate—gradually tapering to a point.
Acute—sharp-pointed, but less tapering than acuminate.
Anastomosing—connecting by cross-veins, forming a network.
Anatropous (ovule)—inverted and straight, with the micropyle next the hilum.
Andræcium—the whole set of stamens.
Anthesis—the expansion or time of expansion of a flower; flowering period.
Apiculate—ending in an abrupt short point.
Aristate—having a bristle or awn, usually terminal in position.
Attenuate—tapering to a very narrow or slender structure.
Bractlet—bract borne on a secondary axis, as on the pedicel.
Bulbil—a small bulb.
Calyx—the outer of two series of floral leaves.
Campanulate—bell-shaped.
Capitate—shaped like a head; forming a dense cluster.
Caudex—the persistent thickened stem base of a perennial herb.
Capsule—a dry fruit resulting from the maturing of a compound ovary.
Carpel—the modified leaf forming the ovary, or a part of a compound ovary.
Ciliate—bearing hairs on the margin.
Corolla—the inner of two series of floral leaves; petals considered collectively.
Connivent—converging; coming into contact.
Corm—the enlarged fleshy base of a stem, bulb-like but solid.
Crenulate—with rounded teeth; scalloped.
Dilated—flattened and broadened, as an expanded filament.
Distichous—arranged in two vertical rows.
Endosperm—the reserve food stored around the embryo.
Exserted—sticking out; projecting beyond.
Extrorse—facing outward.
Filaments—the stalk of a stamen below the anther.

Filiform—long, slender, and terete; thread-shaped.
Gibbous—enlarged or swollen on one side.
Glabrous—without hairs.
Gynæcium—the female reproductive organ of a flower.
Hispidulous—somewhat or minutely provided with stiff or bristly hairs.
Hypogynous—having the corolla or other flower parts inserted below the ovary and free from it.
Inflorescence—mode of arrangement of flowers in a cluster; flower cluster.
Introrse—facing inward.
Lamellate—provided with fin-like blades or cross partitions.
Lanceolate—lance-shaped; widening above the base and tapering to the apex.
Lanulose—very short-woolly.
Loculicidal—splitting along the middle of the back of each locule.
Membranous—thin and somewhat translucent.
Ob—a Latin prefix, usually signifying inversion.
Obovoid—obovate in outline.
Ovary—the part of the pistil containing the ovules.
Ovoid—shaped like an egg.
Ovule—an organ within the ovary which after further development becomes a seed.
Pedicel—stalk of one flower in a cluster.
Perianth—a collective term for the corolla and calyx.
Petal—one of the divisions of the corolla.
Petaloid—petal-like; resembling a petal.
Pubescent—covered with hairs.
Pyriform—pear-shaped.
Raceme—an elongated indeterminate flower cluster with each flower pedicelled.
Retuse—notched shallowly at a rounded apex.
Revolute—rolled backward.
Scabridulous—slightly rough.
Scape—a leafless flowering stalk.

Scapiform—resembling or bearing a scape.
Scapose—bearing flowers or inflorescence on a scape.
Sepal—one of the modified leaves of a calyx.
Septicidal (capsule)—dehiscing along the partitions and between the locules.
Serrulate—finely serrate.
Sessile—not stalked; sitting.
Stamens—the pollen-bearing organ of a flower.
Staminodes—a sterile stamen.
Stigma—the summit of a pistil to which pollen grains become attached.
Stipitate—having a stipe.
Style—the narrowed portion of the pistil which connects the ovary and the stigma.
Subtend—to stand below and close to, as a bract underneath a flower.
Tepal—a division of the perianth, sepal, or petal.
Terete—cylindrical; round in cross-section.
Testa—the outer seed coat.
Turbinate—inversely conical; top-shaped.
Tunicated—having coats (scales) or tunics, as a bulb.
Umbel—a determinate, usually convex flower cluster, with all the pedicels arising from the same point.
Valve—one of the portions of a wall of a pod or capsule into which it separates at dehiscence.
Zygomorphic—applied to flowers capable of being bisected into similar halves along only one plane.

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INDEX TO LATIN NAMES

(Synonyms are in italics.)

	PAGE
Allium	10
acuminatum	11
cernuum	14
crenulatum	14
geyeri	16
geyeri var. tenerum	16
reticulatum	95
rubrum	16
schœnoprasum	18
schœnoprasum var. sibiricum	18
sibiricum	18
stellatum	14
textile	95
validum	18
vancouveriense	14
Asparagus	18
officinalis	21
Brodiæa	21
coronaria	23
douglasii	23
grandiflora	23
hyacinthiana	86
lactea	86
Calochortus	23
apiculatus	25
elegans	25
lyallii	26
macrocarpus	28
Camassia	28
esculenta	32
leichtlinii	30
quamash	32
Clintonia	32
uniflora	34
Disporum	34
hookeri	36
hookeri var. oreganum	36
oreganum	36
smithii	38
trachycarpum	38
Erythronium	40
grandiflorum	40
grandiflorum var. *albiflorum*	45
grandiflorum var. *smithii*	47
giganteum	45
howellii	95
montanum	42
oreganum	45
parviflorum	40
revolutum	47

	PAGE
Fritillaria	47
camschatcensis	49
lanceolata	49
pudica	51
Hesperocordum	86
hyacinthinum	86
Kruhsea streptopoides	74
Lilium	53
columbianum	53
montanum	56
parviflorum	53
philadelphicum	56
philadelphicum var. andinum	57
umbellatum	56
Lloydia	57
serotina	57
Maianthemum	60
bifolium	62
canadense	60
canadense var. interius	60
dilatatum	62
dilatatum var. kamtschaticum	62
Smilacina	62
amplexicaulis	64
brachypetala	64
liliacea	64
racemosa	64
sessilifolia	64
stellata	64
trifolia	66
Stenanthium	68
occidentale	68
Streptopus	70
amplexifolius	70
amplexifolius var. denticulatus	72
curvipes	72
roseus	72
roseus var. curvipes	74
streptopoides	74
streptopoides var. brevipes	74
Tofieldia	74
borealis	76
coccinea	79
glutinosa	79
intermedia	79
occidentalis	79
palustris	76
pusilla	76

	Page
Trillium	
ovatum	81
Triteleia	81
grandiflora	83
hyacinthina	83
Veratrum	86
viride	87
viride var. eschscholtzii	87
eschscholtzii	89
	89
Xerophyllum	
tenax	89
Zygadenus	89
chloranthus	91
elegans	93
gramineus	91
paniculatus	93
venenosus	95
	95

INDEX TO COLLOQUIAL NAMES

Asparagus, garden	21
Asphodel, common false	76
northern false	79
western false	79
Bear-grass	89
Bell, Hooker's fairy	36
large flowered fairy	38
rough fruited fairy	38
yellow	38
Bells, mission	51
mountain	49
Brodiæa, harvest	68
large-flowered	23
Camas, common	23
death	32
great	93, 95
white	30
Chives, wild	91
False asphodel	18
spikenard	76
Hellebore, green false	64
Lily, alp	87
chalice cup	57
Columbia	56
mariposa	53
pink fawn	28
	47
Lily, tiger	53
white avalanche	42
white fawn	45
wood	56
yellow avalanche	40
Lily-of-the-valley, wild	60
Onion, fools	86
Geyer's	16
Hooker's	11
nodding	14
Olympic	14
Queen cup	34
Rice root	49
Solomon's seal, star-flowered	64
trifoliate	66
two-leaved	62
Snowdrop, yellow	51
Trillium	81
Triteleia, large-flowered	83
white	86
Tulip, three spot	25
Twisted stalk	70
simple-stemmed	72
small	74
Wake robin, western	81
Wild lily-of-the-valley	60

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